SUE OF NOVEMBER, 1948

AMERICAN GAS ASSOCIATION MONTHLY

CONNECTICUT IN CALIFORNIA... Authentic colonial saltbox reproduced in exact detail by the Bel Air Building Company of Los Angeles. Now on exhibition—this prime example of 17th century architecture features that prime 20th century work-saver ...a "New Freedom Gas Kitchen"*!

Wherever there's news in building there's a

"NEW FREEDOM GAS KITCHEN"

"NEW FREEDOM GAS KITCHEN"... Compact, cozy—it's as delightful to dine in as it is easy to work in. You can see the shining new automatic Gas range built to "CP" standards, the big 8-foot Servel Gas refrigerator. Unseen—but equally work-saving—is the automatic Gas water-heater which supplies the right quantity *and quality* hot water to the automatic sink.

*Cert. Mark, Amer. Gas Assoc., Inc.

Here they are . . . the four simple requirements that make every "New Freedom Gas Kitchen" a *best seller*

1. **START** with one of your best step-saving kitchen designs.

2. **SPECIFY** a new automatic Gas range built to "CP" standards.

3. **PUT IN** a silent trouble-free Servel Gas refrigerator.

4. **PROVIDE** constant hot water from an automatic Gas water-heater.

FROM EVERY ANGLE a "New Freedom Gas Kitchen" smooths your way! Makes designing easier, if you're an architect . . . because new Gas appliances fit smartly into any size or type of layout. Makes your financial risk smaller, if you're a builder . . . because banks, as well as prospective buyers, recognize the higher re-sale value of a house with new super-quality, super-modern Gas equipment. For more details on how to use and profit by the nation-wide "New Freedom Gas Kitchen" program—see your local Gas company or write direct to:

AMERICAN GAS ASSOCIATION, 420 Lexington Ave., New York 17, N.Y.

* One of a recent series of advertisements run by the American Gas Association in leading builder publications throughout the country.

This year's convention—the largest and most spectacular ever held—proved beyond doubt that the gas industry is playing an increasingly important role in the national fuels picture. It is clear that this thirtieth convention was also the most successful to date. Proof to that effect is supplied in this issue of the MONTHLY. . . . Round-up stories of general sessions and sectional meetings together with a cross-section of featured addresses, show that an unusual number of fundamental issues were discussed. . . . President Reed paints an optimistic picture of achievement. . . . Edward Falck appeals for an integrated system of natural gas pipelines as a safeguard for national defense. . . . The need for a cheaper raw material which would give manufactured gas companies financial relief is shown by Edward Hopkinson. . . . Charles Utermohle reports on the Hall high B.t.u. oil gas process—one of the most promising new methods for keeping the price of the end-product down to a competitive level. . . . Convention-goers learned of plans for an unprecedented expansion era, and Edmond Hanrahan analyzes financial aspects of this program. . . . Calls for a better understanding of human values, for stepped-up promotional, sales and research activities, all are a part of the convention scene. . . . Here then is a panorama of a dynamic industry hard at work—an old industry armed with modern methods seeking new goals.

JAMES M. BEALL
EDITOR

JAC A. CUSHMAN
MANAGING EDITOR

EDITORIAL OFFICES:
AMERICAN GAS ASSOCIATION
420 LEXINGTON AVE., NEW YORK 17, N.Y.

CONTENTS FOR NOVEMBER 1948

FEATURES

THE GAS INDUSTRY ON PARADE 3
GAS INDUSTRY HONORS OUTSTANDING ACHIEVEMENT 8
FINANCING THE EXPANSION PROGRAM—by Edmond M. Hanrahan . 11
GAS UTILITY CAPITAL REQUIREMENTS SET RECORD 13
UNDERSCORE EMPLOYEE RELATIONS 14
THE FUEL OUTLOOK—by Edward Falck 15
FUEL WITH A FUTURE 19
MANUFACTURED GAS BLUEPRINTS EXPANSION 21
PROTECTING THE COMMERCIAL LOAD—by Everett J. Boothby . . . 23
HALL HIGH B.T.U. OIL GAS PROCESS 27
CANADA NEARS "BIG INCH AGE"—by John E. Kelly 29
NEXT STEP IN INDUSTRIAL RELATIONS—by Lawrence A. Appley . . 30
FLAMES OF FREEDOM 32

SECTIONS

ACCOUNTANTS STUDY CAPITAL EXPANSION 34
INDUSTRIAL AND COMMERCIAL SALES RISE 37
NOW IS THE TIME TO SELL 40
HOME SERVICE SHOWS "HOW TO DO IT" 43
TECHNICAL HIGHLIGHTS 45
A.G.A. LABORATORIES 48

DEPARTMENTS

INDUSTRIAL RELATIONS ROUND-TABLE 31
INDUSTRY NEWS 49
PERSONAL AND OTHERWISE 51
NEW A.G.A. MEMBERS 52
OBITUARY 53
PERSONNEL SERVICE 56
CONVENTION CALENDAR 56

THE MONTHLY IS INDEXED BY THE INDUSTRIAL ARTS INDEX

VOL. 30 NO. 11

• Subscription $3.00 a year - Published eleven times a year by the American Gas Association, Inc. Publication Office, American Building, Brattleboro, Vt. Publication is monthly except July and August which is a bi-monthly issue. Address all communications to American Building, Brattleboro, Vermont, or to 420 Lexington Ave., New York 17, N. Y. All manuscript copy for publication should be sent to the editorial offices in New York. The Association does not hold itself responsible for statements and opinions contained in papers and discussions appearing herein. Entered as Second Class Matter at the Post Office at Brattleboro, Vermont, Feb. 10th, 1922, under the Act of March 3, 1879. Cable addresses: American Gas Association, "Amerigas, New York"; American Gas Association Testing Laboratories, "Amerigaslab, Cleveland."

Formula for a successful convention: Giant manufacturers' exhibition, several sessions, sectional and committee meetings, entertainment, hard and careful planning. (Above) President Hudson W. Reed who presi

T

The t
socia
ance M
annals
More
vention
City, N
As t
sions to
to the
meetin
The
Hudson
Industr
with th
made r
showm
and eq
cance t
onstrate
izes the

Partic
lems co
industri
ing, and
the stag
preponc
the indu
convent
1952, e
capital,
end of
Of d
row up
applianc
proved
exhibitio
and was
Many
were pre
full adv
beauty o
entertain

The gas industry on parade

The thirtieth annual convention of the American Gas Association and the concurrent exhibition of the Gas Appliance Manufacturers Association will go down in gas industry annals as the most informative and impressive in many years. More than 10,000 people, including 7,500 registered convention delegates and other visitors, were present in Atlantic City, N. J., October 4-8, to take part in this memorable event.

As the spotlight shifted from the numerous business sessions to the inspiring display of gas appliances and equipment, to the entertainment features, and to the countless personal meetings, the convention unfolded with tremendous impact.

The theme of the convention as pointed out by President Hudson W. Reed in his opening remarks, was "The Gas Industry on Parade." It was a parade on a scale in keeping with the resources of this six billion dollar industry—a parade made more colorful and important through the support and showmanship of leading manufacturers of gas appliances and equipment. Yet the occasion had an underlying significance that no ordinary parade could hope to equal. It demonstrated once again the dynamic leadership that characterizes the gas industry today.

•

Particularly noteworthy was the number of national problems covered by the general sessions speakers. Inflation, industrial relations, fuel economics, financing, research, selling, and conservation of national resources held the center of the stage. Especially significant to the gas industry was the preponderance of attention devoted to problems inherent in the industry's great expansion program. As reported at the convention, the gas industry in the five years, 1948 through 1952, expects to spend from $3 to 3½ billions for new capital, or about 55 percent of the total plant installed at the end of 1947.

Of direct and immediate interest to the public were the row upon row of exhibits showing the most advanced gas appliances and equipment. More than 1,000 new and improved products of 170 manufacturers were on display in the exhibition which covered 66,000 square feet of floor space and was the largest display of its kind ever held.

Many wholesalers, plumbers and dealers of gas appliances were present for the first time at such a convention and took full advantage of the opportunity to see the variety and beauty of the latest-model equipment. Special meetings and entertainment features were held for their exclusive benefit, and it is expected that the success of this innovation will be reflected in future meetings.

After President Reed sounded the keynote in his opening remarks, Edward F. Barrett, president, Long Island Lighting Co., and treasurer of the Association, presented his report. Mr. Barrett read a balance sheet of the Association's finances which indicated that the A. G. A. is operating well within its budget and is in sound financial condition.

In his presidential address, Mr. Reed reported optimistically on the position of the gas industry in the home life and industrial fabric of the country. The largest number of customers in the industry's history was supplied with gas by the utilities in 1947, he pointed out. Of the 21,400,000 customers served, a gain of 800,000 over the previous peak year in 1946, about 19 million were residential customers. An additional five million customers were served by the fast-growing LP-gas industry, he added.

Sales of natural gas by utilities in 1947, Mr. Reed stated, attained the unprecedented volume of more than 2,500,000,000 cubic feet, 14.6 percent more than the previous year. Total revenues of the gas utility industry reached an all-time high of $1,400,000,000, a gain of 15.2 percent over 1946.

Increased rates for many gas utility companies, particularly those in the manufactured gas branch, are necessary if the gas industry is to have the same opportunity for survival as that extended to the farmer, to the manufacturer, to its competitors, the coal and oil industries, and to labor, Mr. Reed declared. Figures and charts showing the gas industry's contribution in combatting the increased cost of living would impress the public favorably, he said.

•

Using the 1935-1939 period as a base, in 1947 the price of all gas sold had been reduced 3.7 percent below the 1935-1939 average, Mr. Reed pointed out. In the same period heavy oil costs increased 179 percent; light heating oil increased 100 percent; anthracite coal, 162 percent; bituminous coal, 179 percent.

Since the principal materials used by the manufactured gas companies are heavy oil, bituminous coal and coke, the prices of which are at inflated levels, this would seem to be a remarkable achievement, Mr. Reed said. But the fact is that the over-all reduction in the price of gas is due largely to

(Top, left to right): A. V. S. Lindsley, The Connecticut Light and Power Co.; Edmond M. Hanrahan, chairman, S.E.C.; Edward F. Barrett, Long Island Lighting Co.; A. J. Gonnoud, Kings County Lighting Company. (Left) A. B. Hossack, American Appraisal Company.

the greater increase in the sale of natural gas at lower than the average 1935-1939 price.

"During 1947-1948 there have been many increases in the rates of manufactured gas, and justly so," Mr. Reed continued. "These increases in general have been far too small. Regulatory bodies recognize that utilities are entitled to rate increases proportionate to the increased cost of labor, material and debt service. To refuse or delay such justifiable increases will ultimately deteriorate the quality of service of which we in the gas business are so justly proud."

Mr. Reed called for the delivery of more and more natural gas to communities which do not receive it now. Delivery of natural gas to manufactured gas areas in the nation is almost an economic necessity, he declared.

The establishment of a national fuel policy for gas, coal and oil which would "conserve and stabilize the use of the nation's remaining natural resources" was advocated by Mr. Reed. He noted that we have a foreseeable supply of bituminous coal for a thousand years, oil reserves for a much shorter period, and encouraging natural gas reserves which should be protected. "It is a challenge to the fuel industries to develop a practical workable program for the conservation of these resources," he said.

Following the presidential address, the report of the Nominating Committee was presented by the chairman, A. V. S. Lindsley, vice-president, The Connecticut Light and Power Co., Waterbury. Robert W. Hendee, president, Colorado Interstate Gas Co., was unanimously elected president for the 1948-1949 A. G. A. term. Others named were Hugh H. Cuthrell, vice-president, The Brooklyn Union Gas Co., first vice-president; D. A. Hulcy, president, Lone Star Gas Company, second vice-president. Mr. Barrett was re-elected treasurer.

Edmond M. Hanrahan, chairman, Securities and Exchange Commission, Washington, D. C., warned gas company executives that the debt ratios some companies have piled up during the post-war expansion are reaching an unhealthy stage. Utility companies, as well as other corporations, should raise more of their capital for expansion by means of new common stock issues, he said.

If the present financing trend continues, Mr. Hanrahan declared, "industry will face the inevitable shakedown that follows prosperity with its capital structures heavily loaded with debt and with a high burden of fixed charges."

The S. E. C. chairman paid tribute to the gas companies and their "expansion program of epic proportions." The natural gas industry, he continued, "has shown the courage to undertake tremendous tasks and the ingenuity with which to overcome formidable obstacles. I am confident that its financial problems will

(Left to right) Marc Ferlet, directeur general, Gaz de France; P. L. Schereschewsky, N. C. Trading Co., New York; Dr. William A. Irwin, economist, The American Bankers Association; T. J. Strickler, The Gas Service Co., Kansas City, Mo.; Geo. F. Mitchell, James F. Oates, Jr., The Peoples Gas Light & Coke Co.

New association officers:

PRESIDENT

Robert W. Hendee, President
Colorado Interstate Gas Co.

FIRST VICE-PRESIDENT

Hugh H. Cuthrell, Vice-President
The Brooklyn Union Gas Co.

SECOND VICE-PRESIDENT

D. A. Hulcy, President
Lone Star Gas Co.

be met in the same aggressive manner and with eminent good sense." The text of Mr. Hanrahan's remarks appear elsewhere in this issue.

Concluding the first general session, John A. Robertshaw, president, Gas Appliance Manufacturers Association, and president, Robertshaw-Fulton Controls Co., Greensburg, Pa., said there are signs of "bright blue weather on the business horizon. The murky economic skies might clear more quickly if those attempting to create artificial business weather would cease their efforts."

Mr. Robertshaw reviewed the promotional efforts of A. G. A. and G. A. M. A. and spoke highly of the solidarity and increasing cooperation of these national organizations and their members. "Individual manufacturers," he pointed out, "are increasing their promotional and advertising budgets to where they are now the largest in history. The same trend applies to scientific and applied research budgets. This again furnishes proof that the epidemic of inertia which has been so contagious is dying out to make way for a healthy program of advancement."

Estimating that gas range production will reach 2,800,000 units for 1948, the largest in the industry's history, Mr. Robertshaw called for gas companies to increase their sales staffs. No price reductions are in sight, he noted, because the steel situation prevents manufacturers from reaching full capacity and material and labor costs continue to rise.

The next step in industrial relations will be the rapid and broad growth of understanding of human values, Lawrence A. Appley, president, American Management Association, New York, told the convention in the opening

TREASURER:

Edward F. Barrett, president, Long Island Lighting Co., Mineola, L. I.

DIRECTORS:

F. M. Banks, vice-president & assistant general manager, Southern California Gas Co., Los Angeles, Calif.
Alexander M. Beebee, president, Rochester Gas and Electric Corp., Rochester, New York
N. B. Bertolette, president, The Hartford Gas Co., Hartford, Conn.
Henry Fink, president, Michigan Consolidated Gas Co., Detroit, Mich.
O. S. Hagerman, president & general manager, United Fuel Gas Co., Charleston, W. Va.
John L. Haley, president, Central New York Power Corp., Syracuse, N. Y.
D. P. Hartson, vice-president & general manager, Equitable Gas Co., Pittsburgh, Pa.
George F. Mitchell, president, The Peoples Gas Light and Coke Co., Chicago
A. B. Ritzenthaler, vice-president in charge of sales, The Tappan Stove Co., Mansfield, Ohio
Robert W. Otto, president, The Laclede Gas Light Co., St. Louis, Mo.
John C. Parker, vice-president, Consolidated Edison Co. of New York, Inc., New York, N. Y.
Frank C. Smith, president, Houston Natural Gas Corp., Houston, Texas
Alvin H. Stack, president & general manager, The Tampa Gas Co., Tampa
Allyn C. Taylor, president, Consumers Gas Co., Reading, Pa.
John Van Norden, secretary & New York manager, American Meter Co., New York, N. Y.

SECTION CHAIRMEN FOR 1948-49

ACCOUNTING SECTION

Chairman—Lester E. Reynolds, The Connecticut Light & Power Co., Hartford, Conn.
Vice-Chairman—John H. W. Roper, Washington Gas Light Co., Washington, D. C.

NDUSTRIAL AND COMMERCIAL GAS SECTION

Chairman—B. T. Franck, vice-president, Milwaukee Gas Light Co., Milwaukee, Wisc.
Vice-Chairman—D. W. Reeves, Oklahoma Natural Gas Co., Tulsa, Okla.

MANUFACTURERS SECTION

Chairman—William F. McConnor, National Tube Co., Pittsburgh, Pa.

RESIDENTIAL GAS SECTION

Chairman—W. M. Jacobs, Southern California Gas Co., Los Angeles, Calif.
Vice-Chairman—H. P. Morehouse, Public Service Electric & Gas Co., Newark, N. J.

TECHNICAL SECTION

Chairman—W. R. Fraser, Michigan Consolidated Gas Co., Detroit, Mich.
Vice-Chairman—Ernest G. Campbell, The Peoples Gas Light & Coke Co., Chicago, Ill.

LABORATORIES MANAGING COMMITTEE

Chairman—Arthur F. Bridge, president, Southern Counties Gas Co., Los Angeles
Vice-Chairman—Charles E. Bennett, president, The Manufacturers Light and Heat Co., Pittsburgh, Pa.

PUBLICITY AND ADVERTISING COMMITTEE

Chairman—R. G. Barnett, vice-president, Portland Gas & Coke Co., Portland, Ore.

address of the general session on Wednesday morning. Good personnel administration requires more attention to personnel inventories to reach a more accurate appraisal of human resources, he said. His timely message is outlined in this issue of the MONTHLY.

Recommendations towards protecting the commercial load of gas utilities were made in an informative address by Everett J. Boothby, vice-president and general manager, Washington Gas Light Company, and a past A. G. A. president. He called attention to the substantial revenue and good load factor of the commercial business, adding that, in most instances, "the return on your investment to serve the commercial load is probably from one and one-half times to two and one-half times the corresponding figure for your residential load."

Competition has been very active in attempting to get this business, Mr. Boothby said, and he urged immediate measures to assure continuance of the dominant position of gas in the commercial field. As part of a long-range program he suggested: a program to remodel or modernize every item of commercial equipment; full consideration of the functional organization of food producing establishments; doubling the sales of gas through promotion of water heating, steam, space heating, and air conditioning; an analysis of the sales effort per dollar revenue; maintaining commercial equipment in top operating condition; and achieving a closer working relationship between the utilities and manufactures. (See page 23.)

A. B. Hossack, president, American Appraisal Company, New York, put his finger on one of the country's most knotty problems, when he pointed out that industry is engaging in "wishful thinking" if it plans for the future on the basis of a return to pre-war price levels. Prices will probably be stabilized at a plateau "not less than 50 percent in excess of those prevailing during the period of war price and wage controls."

Mr. Hossack warned that increased replacement costs thus were out of line with depreciation reserves based on original cost. Recovery of cost, he said, will no longer provide sufficient capital to make possible replacements. "Current production costs should include a charge sufficient each year to provide in present dollars for that portion of the plant currently used up in service," he stated. If such a reserve is not provided, he said, corporations may find it difficult to raise the necessary capital for new plant construction when it is required.

An important feature of this session was the presentation of seven separate awards to various individuals and company departments for outstanding achievement during the past year. Details of these awards are covered on subsequent pages in this issue.

The concluding general session on Thursday morning, began with a forthright address by Dr. William A. Irwin, economist, The American Bankers Association, New York, on the vital topic, "Inflation and the American Economy." Inflation is here now, Dr. Irwin declared, and the upward trend started on October 22, 1933, when President Roosevelt said . . . "it is definitely a part of our policy to increase the rise (in farm prices) and to extend it to those products which have as yet felt no benefit." Other factors were the decrease in the gold content of the dollar to 59 cents, the well-founded belief that scarcity in relation to demand causes prices to rise, and conditions related to the war.

Inflation, in the speakers opinion, is

L. E. Knowlton (left), Providence Gas Co.; Linn Edsall, Philadelphia Electric Co.; James Cook, Westchester Lighting Co., Earl H. Eacker, Boston Consolidated Gas Co.; Norman Hudson, Westchester Lighting Co.

Largest display of its kind ever held, this giant G.A.M.A. Exposition covered 66,000 square feet of floor space and contained exhibits of 170 manufacturers who displayed more than 1,000 new and improved products. Servel all-gas house can be seen on the auditorium stage in the background

not spontaneous but "it is man-made." "It arises," he said, "from the adoption and carrying out of policies that can have no other economic effect."

Dr. Irwin maintained that full employment by its very nature is inflationary. Under full employment, particularly when labor is well organized, monopoly power is placed in the hands of labor leaders. Then due to political and economic influence, they can enforce demands for higher wages and also decrease production.

Today managers of our political economy are becoming disturbed about inflation, he added, and they have taken a few mild steps to check it. Short-term interest rates have been allowed to rise to discourage business borrowing. Reserves of commercial banks against their deposit liability and controls over installment credit have been revived.

The American Bankers Association, Dr. Irwin said, is carrying on a campaign urging its member banks to make loans only for productive purposes. This plan, which has achieved results, has been commended by the President of the United States and the Secretary of the Treasury.

A comprehensive analysis of the fuel outlook which dealt with economics, rates, regulation, financing and national security was presented by Edward Falck, chief consultant on power and utilities, National Security Resources Board, Washington, D. C. Mr. Falck advocated the development of a strong, integrated national system of natural gas pipelines, manufactured gas companies and distributing companies. There is no forseeable need, he said, for government subsidy to accomplish this purpose, he said, as up to the present time private enterprise has been willing to underwrite the financing of expansion projects. The chief thing needed now is to unblock the obstacles to the earliest completion of the construction that has been authorized and is under way. "The most important single bottleneck is the shortage of steel pipe," he stated.

Natural gas shortages in certain areas will never be overcome until natural gas prices are brought into line with the prices of competing fuels, Mr. Falck pointed out. Specifically he recommended that gas space heating be distinguished from ordinary utility-type service and priced on a competitive fuel basis. A major part of his fact-filled address is reproduced in this issue.

H. D. Hancock (left), president, Gas Advisers, Inc., New York, chatting between sessions with Abel O. Malvestiti, representing the Argentine Government Gas Service Department, Buenos Aires, Argentina

The rapid rise of organized research was traced by Clyde Williams, director, Battelle Memorial Institute, Columbus, in a timely address entitled "Industry in the Modern Research Age." Revolutionary events of the past eight years, he pointed out, have put research and technology in the same if not greater strategic position in relation to the welfare of a business as sales and advertising. "Wise management," he counseled, "will give research and technology a constantly increasing position in its operation."

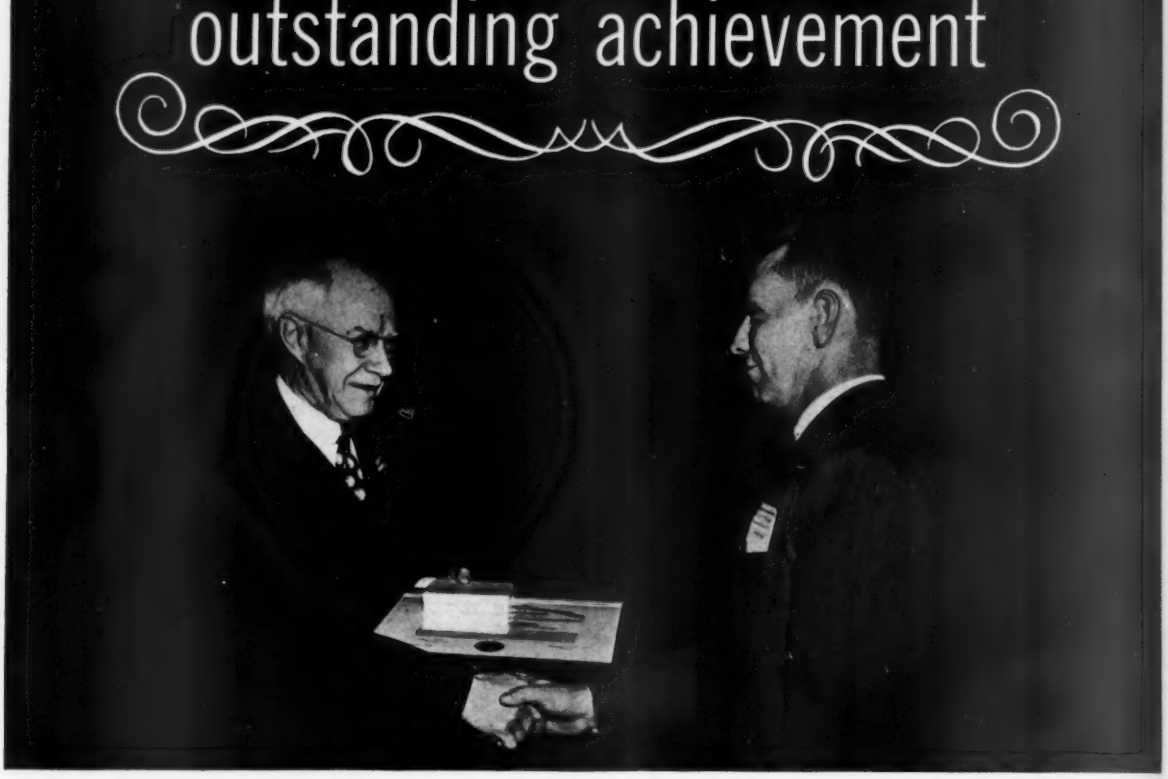
While most research effort is being done by individual companies, Mr. Williams said, group effort represents 25 or 30 percent and the ratio is growing. He termed the A. G. A. system of sponsored research projects in universities and research foundations well organized and highly effective.

Turning the attention of the convention to selling, Jack Lacy, president, Lacy Sales Institute, Boston, expressed the opinion that America could minimize or avoid depressions in the future if there were enough good salesmen. "There is absolutely no difference," he said, "in the amount of money and credit that is available when we are at the bottom of a slump as compared to when we are at the top of a boom. The only difference is in the circulation of that money and credit. The business of salesmen is to keep enough money in circulation and if we have enough good salesmen we will keep enough money in circulation to keep our economy climbing generation after generation."

Mr. Lacy pointed out the fact that some psychologists assert that none of us use more than 20 percent of our ability. "Therefore," he *(Continued on page 25)*

More than 600 activities of the American Gas Association were mentioned in this spacious display booth in Atlantic City. Staffed by headquarters personnel, the booth listed A.G.A. work under the following headings: Testing Laboratories, information, promotion, research and technical

Gas industry honors outstanding achievement



President Hudson W. Reed presenting A.G.A. Meritorious Service Award to Robert J. Ullom, The Manufacturers Light and Heat Co., Washington, Pa.

PT. Dashiell, until recently vice-president, The Philadelphia Gas Works Co., and now associated with United Engineers & Constructors, Inc., Philadelphia, has been awarded the highest honor within the gift of the American Gas Association—the A. G. A. Distinguished Service Award—for the most outstanding contribution of an individual toward the advancement of the gas industry. The presentation was made at the second general session during the Association's thirtieth annual convention, October 4-8.

At the same time, ten other members of gas utility companies shared honors for outstanding individual achievement in their respective fields as the winners of four more top gas industry awards. The first annual A. G. A. Progress Award for Gas Summer Air Conditioning was presented to Southern California Gas Co., Los Angeles. Outstanding achievement in safety was recognized by the presentation of Merit Awards to two operating units of The Ohio Fuel Gas Company.

The industry's top honors for achievement were distributed as follows:

● **A. G. A. Distinguished Service Award**—given to Mr. Dashiell for his contributions in the development of manufactured gas production processes.

Mr. Dashiell is responsible for the initial development, in the early 1920's, which led to the general use of heavy oils in the manufacture of carburetted water gas, one of the most important economic developments in the industry. For nearly 50 years he has made many valuable contributions toward the technical advancement of the industry and has served as chairman or member of numerous technical committees of the Association. As chairman of the A. G. A. Gas Production Research Committee from its organization in 1944 until 1947, he directed the revitalized and enlarged production research program under the industry's PAR program.

The Distinguished Service Award consists of a substantial financial acknowledgement and an engrossed certificate. The 1948 award committee consisted of R. H. Hargrove, Shreveport, chairman; A. M. Beebee, Rochester; and LeRoy M. Edwards, Los Angeles.

Mr. Dashiell is a holder of the Beal Medal, awarded annually by the Association for the best technical paper presented at its meetings, and is the author of numerous articles on technical aspects of the manufactured gas industry. He is

also a winner of the Walton Clark Medal, awarded by Franklin Institute for outstanding work in the gas industry.

● **A. G. A. Meritorious Service Medal**—given to Robert J. Ullom, The Manufacturers Light and Heat Co., Washington, Pa., a helper on a gas well cleaning out machine, for the most outstanding life saving act in the gas industry during the year. The award consists of a gold medal, button and certificate and is made possible by a fund donated by the late Walter R. Addicks, senior vice-president, Consolidated Gas Company of New York, now Consolidated Edison Co. of New York, Inc.

Mr. Ullom received this high national honor in recognition of his bravery and presence of mind on December 3, 1947 in rescuing an unconscious fellow worker whose clothes were on fire following an explosion which ignited a newly-drilled gas well. After being himself thrown to the ground and suffering severe burns and shock, Mr. Ullom pulled his coworker from the blazing engine house and beat out the flames.

● **A. G. A. Safety Merit Awards**—presented to two operating units of The Ohio Fuel Gas Company for their outstanding achievement in accumulating one million or more man-hours of work without a disabling injury accident.

The gas utility divisions of The Ohio Fuel Gas Company which won this national recognition are: Distribution District No. 3, Elyria, Ohio, whose 175 employees have worked a total of 3,024,730 hours from April 2, 1939 to April 15, 1948, without a disabling injury, and Distribution District No. 1, Toledo, Ohio, whose 295 employees have established a work record of 1,268,000 hours from January 29, 1946, to March 11, 1948, without a disabling injury.

The awards were recommended by the Association's Accident Prevention Committee and approved by the awards committee consisting of W. F. Brown, New York, chairman, W. T. Rogers, New York, and H. T. Jayne, Philadelphia.

● **Beal Medal**—presented to Samuel W. Horsfield, gas production manager, Long Island Lighting Co., Mineola, N. Y., for contributing the best paper to Technical Section meetings of the Association throughout the year. Mr. Horsfield received the Beal Medal for his paper entitled "The Catalytic Cracking Process As a Means of Peak Load Shaving," presented at the Joint Production and Chemical Conference last May.

The award was presented on behalf of the donor, Ernest R. Acker, president, Central Hudson Gas & Electric Corp., Poughkeepsie, N. Y., representing the family of the late W. R. Beal who established the award in 1897. This prize consists of a bronze medal and in addition a substantial cash payment.

The paper which won this national

L. J. Fretwell, winner, Gas Heating Progress Award; W. M. Jacobs accepting Progress Award for Gas Summer Air Conditioning for Southern California Gas Co.; S. W. Horsfield, winner, Beal Medal

R. E. Ginna (left), Rochester, third-place winner, Gas Heating Progress Award; P. T. Dashiell, Philadelphia, Distinguished Service Award winner, I. A. Ludwig, receiving Safety Merit Awards for The Ohio Fuel Gas Co.; W. E. Davis, Pittsburgh, second-place winner, Gas Heating Progress Award

Camille David (left) and Elizabeth Sweeney (center), McCall's magazine, with Home Service Achievement Awards winners: (l. to r.) Florence Wren, Englewood, N. J.; Mrs. Nellie Oxrider, Dayton, Ohio; Helen Kirtland, Columbus, Ohio; Lois Dinneen, Pittsburgh, and Arra Sutton Mixter, Hartford

recognition for Mr. Horsfield gives a description and operating results of the catalytic reforming plant of the Long Island Lighting Company at Riverhead, the first such plant to attain full commercial operation for a utility company.

The award committee consisted of R. W. Hendee, Colorado Springs, chairman, A. C. Cherry, Cincinnati, and Hugh H. Cuthrell, Brooklyn.

● **Gas Heating Progress Award**—sponsored by The Coroaire Heater Corporation and awarded to three gas utility men for individual achievement in the field of creating, maintaining and increasing consumer demand for gas house heating.

L. J. Fretwell, chief commercial engineer, Oklahoma Natural Gas Co., Tulsa, Okla., was awarded first prize of $500 for his practical and effective program to upgrade gas heating installations and servicing. This program is an educational plan for dealers, builders, city inspectors and the consuming public and includes adoption and enforcement of model ordinances on correct heating installations.

Second prize of $250 went to W. E. Davis, assistant general sales manager, Equitable Gas Co., Pittsburgh, Pa., for an outstanding dealer participation program to develop the gas heating market. Purpose of the program was to promote customer acceptance of high quality equipment and installation standards.

Third prize of $150 was awarded to Robert E. Ginna, vice-president in charge of sales, Rochester Gas and Electric Corp., Rochester, N. Y. for the aggressive forward-looking gas house heating program for utilities outlined in the paper "What To Do About House Heating," presented at the New Jersey Gas Association's annual convention. In this paper Mr. Ginna advocated greater efforts by the utilities to serve the house heating customers, more research, and a more realistic attitude toward the future development of gas house heating.

● **A. G. A. Home Service Achievement Awards**—sponsored by *McCall's* Magazine and awarded to Helen Kirtland, home service director, The Ohio Fuel Gas Co., Columbus, Ohio; Mrs. Arra Sutton Mixter, home service director, The Hartford Gas Co., Hartford, Conn.; Lois Dinneen, home service division, Equitable Gas Co., Pittsburgh, Pa.; Mrs. Nellie Oxrider, director of home service, The Dayton Power & Light Co., Dayton, Ohio, and Florence Wren, home economics adviser, Public Service Electric & Gas Co., Englewood, N. J.

Each winner received $200 and a bronze plaque. In this eighth annual contest, which is open only to gas utility home service personnel, awards were made in three divisions to individuals who made effective contributions during the year to the advancement of modern homemaking by promoting the use of gas and modern gas equipment.

● **A. G. A. Progress Award for Gas Summer Air Conditioning**—sponsored by Servel, Inc., and presented to the Southern California Gas Company, Los Angeles. The award provides national recognition to the gas utility company judged to have made the greatest contribution during the year to the advancement of gas summer air conditioning.

A check for $1,000 and a plaque were presented to the winning company. In addition, gold-plated replicas of the plaque were given to A. F. Michael, general supervisor of air conditioning sales, and 14 other members of the Southern California Gas Company who contributed to the award.

The Jury of Awards consisted of H. P. Morehouse, Newark, N. J., chairman; L. L. Ladewig, Houston, chairman, A. G. A. Gas Summer Air Conditioning Committee; Harold Massey, Gas Appliance Manufacturers Association; Prof. R. J. Martin, University of Illinois; H. W. Springborn, *Gas Age*, New York; and R. F. Taylor, Houston, Texas, representing the American Society of Heating and Venti- *(Continued on page 53)*

Jury for first annual American Gas Association Progress Award for Gas Summer Air Conditioning sponsored by Servel, Inc.: (Left to right) Harold Massey, G.A.M.A.; H. W. Springborn, Gas Age Magazine; H. P. Morehouse, Public Service Electric & Gas Co.; L. L. Ladewig, Houston Natural Gas Corp., chairman; Professor R. J. Martin, University of Illinois, Urbana, and Reginald F. Taylor, Houston, Texas

Jury studying entries for the A.G.A. Gas Heating Progress Award sponsored by The Coroaire Heater Corp.: (Left to right) Harold Massey, G.A.M.A.; Clifford Strock, Heating and Ventilating Magazine; E. P. Cramer, Ebasco Services, Inc., and H. A. Diekmann, The Brooklyn Union Gas Co., jury chairman

Financing the expansion program

BY EDMOND M. HANRAHAN

Chairman, Securities and Exchange Commission, Washington, D. C.

As you are all well aware, the natural gas industry is engaged in an expansion program of epic proportions. The construction of the great transmission lines is in the most romantic tradition of American enterprise. The scale of activity involved, the engineering triumphs achieved in flinging great lines of 20 to 30-inch steel pipe thousands of miles across the face of the nation, the harnessing of vast unused natural resources for the benefit of large numbers of people, and the great rewards that come from success in such ventures are the stuff of the American dream.

There is a dramatic appeal here that stirs the emotions. To my mind this dramatic appeal has been as important in the successful financing and construction of such projects as Texas Eastern, Tennessee Gas, and the other great lines as has the lure of profit. It is significant that in no other industry have so many great new enterprises been projected and financed.

The capital expenditures of the natural gas industry have increased at a phenomenal rate, a rate far exceeding that of business generally. Between 1939 and 1948, the dollar volume of all private domestic investment increased a little more than fourfold; in the electric utility industry this increase was about fivefold; but in the natural gas industry capital expenditures increased over 12 times—from a little less than $50 million in 1939 to $630 million in 1948. Furthermore, proposals now under discussion in responsible industry circles indicate that close to a billion dollars may be spent during each of the next few years.

The rate of expansion in the gas industry appears to be due to the joint action of two powerful currents, one reinforcing the other. One is the extraordinary expansion in business activity since the end of World War II and the second is the shift from other fuels to gas. In many places gas has become the cheapest as well as the most desirable fuel for many household and industrial uses. The present program, unlike that of 1928-1930, is based not on a theoretical estimate of a potential market waiting to be exploited but on the hard reality of a pressing shortage.

Because the expansion has been so heavily concentrated in natural gas, I am restricting my remarks to the financial developments in that portion of the industry. A good part of what I have to say is drawn from the results of a study made by the staff of the Securities and Exchange Commission as to the manner in which a group of the principal natural gas companies have financed their expansion program since 1945. The group consists of 19 companies which had assets on December 31, 1945 of over $2 billion and which hold the bulk of the assets of the natural gas industry.

Though most natural gas companies accrued substantial sums through depreciation charges and retained a considerable portion of their profits, the industry, like many others, was unable to supply from internal sources all of the funds required for expansion. The group of companies we studied had available from such sources a little over $100 million a year. While this was sufficient, after providing for debt retirement, and working capital, to finance requirements during the late 1930's and early 1940's, it became wholly inadequate when capital expenditures rose to their present level. New pipeline companies, of course, had to finance entirely from outside sources.

In the two and one-half years from December 1945 to June 1948 this group of companies made new capital expenditures totaling about $700 million, including about $250 million by the two new transmission lines, Texas Eastern and Tennessee Gas. Of this amount $550 million was obtained from the sale of new securities and the remainder from internal sources. Excluding the

S.E.C. Chairman Hanrahan, at general sessions, paid tribute to gas companies' expansion program

Presented at October 5 general session during A. G. A. Convention in Atlantic City, N. J.

money raised by the two new companies, it appears that the other companies in our group raised about one-third of their construction requirements from internal sources and about two-thirds from the sale of new securities.

How was the new money raised? Our study shows that the bulk was obtained through the sale of senior securities. Of the $245 million raised by the two new pipeline companies, over 80 percent was obtained through the sale of bonds, about four percent through the sale of preferred stock, and only 15 percent from the sale of common stock. Of the $305 million of new funds raised by the older companies, about 87 percent was obtained from the sale of bonds, about three percent through the sale of preferred stock, and ten percent from the sale of common stock

As can be seen from these figures the sale of preferred stock played only a minor part in the financing program of the industry. While common equity has been materially increased by retained earnings, the sale of additional common stock has also played but a small part in raising new funds. Aside from the two new transmission lines, only three of the companies in our group have issued common stock.

A striking characteristic of the senior securities issued is their relatively short life; all have heavy sinking funds or serial maturities. The principal reason for these features appears to lie in the "wasting asset" character of our natural gas resources, but they have also aided materially in providing market appeal. Because of institutional preference for securities which "pay out" rapidly, banks and insurance companies have found natural gas debt issues very much to their liking. In fact, the industry has now achieved a credit status comparable to that of electric and telephone utilities.

Institutions dominate

Of the approximately $800 million of new and refunding issues floated by the companies in our group since 1945, more than half were placed privately with institutional investors. The size of an issue has been no obstacle to direct placement, as shown by the fact that the two largest natural gas issues, each well over $100 million, were sold in this manner. Furthermore, we know that the bulk of the publicly offered issues was taken by these same investors.

This is in sharp contrast to the conditions prevailing some ten years ago, when natural gas bonds aroused almost no institutional interest. In fact, institutions now dominate the market for natural gas debt to such an extent that they are virtually "locked in" their present positions: no other market at anything like going money rates appears to exist. Institutions have, therefore, great interest in the protective provisions written into these securities as well as in the general corporate health of the natural gas industry.

Let us look now at the effect of heavy debt financing upon the capital structures of the companies in our group. First, we note that the corporate structures of transmission companies vary materially from those which have both distribution and transmission facilities. Thus, the capital structure of one transmission line shows 80 percent debt; another 71 percent debt and 13 percent preferred stock; and a third 69 percent debt and 12 percent preferred. Similarly, the other transmission companies in our group show debt ratios ranging from 50 to 65 percent.

The companies with large investments in distributing facilities show smaller debt ratios. Thus, five of the companies in this group, including the two largest, have about 50 percent of their capital in debt; one has 38 percent, one 28 percent, and the remaining three show about 15 percent debt.

High debt ratios for transmission companies have been defended on the ground that where such companies have firm contracts, both for the purchase of gas and for its sale to responsible distribution companies, they may safely undertake a higher initial proportion of debt. This argument has some appeal, but it has its limitations, too, and in some cases it has been carried too far. It may, in fact, be almost completely inapplicable to a transmission company whose costs of gas and costs of transmission, including depreciation on a high-cost line, are sufficiently great that other fuels may be able to compete successfully with it during periods of unfavorable business conditions. Some of the new pipelines which are now being constructed or which are in contemplation may encounter such higher costs and, consequently, should finance their construction in a conservative manner.

Turning again to our group of companies, it is to be noted that all which participated in the expansion program have shown increases in their debt ratios. For the group the total debt outstanding has doubled since 1945, although assets rose only about one-third. In every case reasons can, I am sure, be advanced to justify the issuance of debt. However, I am not betraying any secrets when I say that we at the Securities and Exchange Commission are disturbed by the fact that many utility corporations, electric as well as gas, and, indeed, many corporations in other lines of activity, have since 1945 relied so heavily on debt financing to meet their expanding capital requirements.

High ratios

Our concern is not due to any belief that, generally speaking, the capital structures of electric utility corporations or of natural gas companies are weak. Serious problems do not, of course, arise when a natural gas company increases its debt ratio from 0 to 15 percent or from 13 to 29 percent. Indeed, it is just for the purpose of enabling management to meet expansion requirements that high common stock equities are maintained.

However, when ratios begin to go from 42 to 59 percent, from 50 to 70 percent, from 40 to 65 percent, or from 30 to 60 percent, there is cause for uneasiness. It then appears that management is again looking backwards to the days of high leverage and that trading on the equity once again has allure. Should this trend continue, the industry will face the inevitable shakedown that follows prosperity with its capital structures heavily loaded with debt and with a high burden of fixed charges. None of us wants to see the gains achieved in the last decade wiped out and utility capital structures put back to where they were in the '30s, with all the attendant dangers. Already, many companies have assumed a heavy burden of fixed charges and debt retirement. Conservatism in dividend and depreciation policies will be required of these companies during the coming years, even if the anticipated high level of revenues and profits is realized.

The reason most commonly advanced for the failure to sell common stock in recent years is that the market has been bad and the flotation of common stocks "too expensive" to be justified. This rationalization does not appear to me to be particularly strong in the case of natural gas companies. For many years natural gas equities have sold at high ratios to earnings. New offerings have

been quickly absorbed and have soon sold at substantial premiums over the offering price. Shortage of materials and equipment have at times delayed construction projects, but adequate funds —both equity and debt—have been readily available.

I do not believe that the principal reason for such heavy reliance on debt financing is that management took the easiest way out and loaded up with as much cheap money as could be gotten regardless of the consequences. I am more inclined to believe that the reason why they did so lay deeper and flowed from certain assumptions as to the future of our economy.

It is my belief that the reason lies in the theory widely held towards the end of World War II that war prosperity was sure to be followed by postwar depression. The unexpected need for funds, therefore, was looked upon as something limited and temporary in character, something that would be over when the projects then being undertaken were completed.

The same attitude was prevalent in the electric utility industry where the size of the postwar expansion program dawned only gradually upon the industry with the result that plans had to be continuously revised upwards. Indeed, what appears to have concerned management was whether demand following the expected postwar letdown would be sufficient to keep the new facilities operating at a reasonable ratio to capacity. It therefore appeared undesirable to take in new partners. On these assumptions, it was natural to conclude that debt financing at attractive rates was the appropriate solution to the immediate problem. Cheap money for a short-term boom seems to have been the idea. The heavy sinking fund payments and the large serial retirements undertaken could, it was felt, easily be met from the depreciation charges and from the profits that were sure to accrue as a result of the expansion. Time, it was believed, would cure the capital structures and reduce debts to a point where the ratios looked better.

With the benefit of hindsight we can now see that in 1944 and 1945 we were blindly waiting for history to repeat itself. We were waiting for the problems that faced us after the first World War to reappear and this time we were determined to be prepared for them. Had we had the wisdom we would have seen that the problems facing us were not those of depression, deflation, and unemployment, but those of satisfying the huge volume of demand accumulated during the war years—a volume of demand so great that it has taxed our war-expanded capacity to the hilt for more than two years and still appears to be far from satisfied.

We would have seen that the American people had accumulated huge liquid savings, were enjoying a high level of income, and were determined to translate those funds into higher standards of living; that millions of young veterans, newly released from the armed services, were determined to set up new homes and rear families.

We would have seen that the devastated areas of the world would have to be restored and that in one way or another funds to aid in such restoration would be provided; that business had the desire and the funds with which to expand capacity, modernize plant, and put upon the market the new products developed during the war.

In short, most of us discounted too heavily the fact that consumers, farmers, business men, and state and local governments were in the best financial condition in our history, that our people had the determination and the wherewithal to live a better life.

The effect of the continued high level of business activity has been that the demand for gas, instead of leveling or falling off as was expected, has continued to increase, taxing capacity to the full. Thus new *(Continued on page 56)*

Gas utility capital requirements set record

TOTAL capital requirements of the gas utility industry for the five-year period, 1948-1952, are estimated at $3,300,000,000 according to the results of a survey released by the Committee on Economics of the American Gas Association. This sum represents an increase of more than 50 percent in the industry's present capital investment of nearly six billion dollars. The 1948 portion of the estimated total is $875 million, a new peak for any year in the industry's history.

The study was made by the Subcommittee on Economic Problems under the chairmanship of E. W. Morehouse, vice-president, General Public Utilities Corp., New York. R. E. Ginna, vice-president, Rochester Gas and Electric Corp., is chairman, Committee on Economics.

More than 90 percent of the five-year total will be needed for construction of new facilities, the balance going for such purposes as working capital or acquisition of existing properties. The figures are exclusive of refunding operations and of requirements that may result from approval of pending applications for pipe-line construction.

Of the companies surveyed, financing sources were indicated for approximately $1,100,000,000 of the $3,300,000,000 five-year total. Projecting a break-down of this figure to the entire amount, the committee estimates that about $1,300,000,000 will be derived from internal sources such as depreciation accruals and undistributed earnings, and $2 billion from permanent external sources such as sale of bonds and stock, and bank and other loans. The bond portion is estimated at about $1,200,000,000, or a little more than one-half the total from external sources.

By far the largest part of the new capital requirements, about $2,650,000,000 or 80 percent, will be needed by the natural gas industry in the five-year period, the survey indicates. Manufactured-gas companies will need about $530 billion or a little more than 15 percent. The remainder will be for mixed-gas utilities.

In the natural-gas industry more than 25 percent of the total is expected to come from internal sources, leaving a little less than $2 billion to be derived from external sources. The committee estimates that this goal will not be difficult to reach and that given certain changes in regulatory policies and the tax structure, a large part could come from sale of stock.

Included in the $530 million estimate for the manufactured-gas industry is about $420 million for gas plants required by combination gas and electric companies, and $110 million for the straight manufactured-gas companies.

The committee notes that the manufactured gas companies in general cannot now attract capital on as favorable terms as the natural-gas units, but feels that some factors favorable to the manufactured units may have been overlooked. These include benefits to manufactured-gas units resulting from expansion of the natural-gas facilities, rate increases, and a sound competitive position of the gas industry with relation to the price of other fuels. All these, the committee feels, tend to improve the financial prospects of the manufactured-gas industry and to bolster its credit.

New technological processes within the industry also are cited as factors in more economical operations.

Underscore employee relations

Luncheon speaker discusses value of collective bargaining

Collective bargaining unless curbed and dealt with appropriately through law and human relations, threatens to weaken the privately owned, privately managed, competitive American system and convert it into socialism, warned Leo Wolman, Bureau of Economic Research and professor of economics at Columbia University, during the gas industry's recent convention in Atlantic City.

Appearing on October 7 as main speaker at a special luncheon sponsored by the American Gas Association Personnel Committee, Charles G. Simpson, Jr., The Philadelphia Gas Works Co., chairman, Dr. Wolman stated that in effect collective bargaining is bringing about a transfer of authority from the employer and management to the union. Secondly, he added, collective bargaining takes out of competition everything related to labor costs.

"Is the removal of labor from competition unimportant, trivial, or is it a fact of overwhelming importance?" Dr. Wolman asked. "We know that answer now, and that answers a lot of other things. We have a measure, and it's a pretty good one. It has been worked on for 25 years. What are these figures? They are measures of things we call the national income, the performance of an economic system.

"These figures show that year in and year out to labor, the compensation for personal services, to professionals, to farmers and related occupations in the United States, goes 83 percent of the national income. That was true from 1919 to 1937.

"Just the other day I looked at the 1947 figure, and the 1947 figure is 82 and one fraction percent, which leaves 17 percent for something else. How can you talk of a competitive economic system in which you say a great slice of 82 percent of the national income is constantly being taken out of competition?

"Look at my definition, my description of collective bargaining," Dr. Wolman continued, "these two attributes —one, that authority is transferred from one agent to another of a wholly different character from the first, and the inference I drew about not being able to run a competitive economic system unless the people who manage and invest have the power to make decisions which will not be revoked. Add to this the fact that the overwhelming share of the national income of the country goes into labor costs, directly or indirectly. Hence, if you say this is no longer to be regarded as a competitive area, what you are doing is kissing goodbye to competitive business."

He advised managements involved in collective bargaining to hold onto their managerial rights.

The way to raise the material living standard of a country, he declared, is to get more production. Russia has learned that fact, but doesn't know how to do it. England has learned it too and has "given up the notion that if you just redistribute what there was, however little, that that would solve your problem for a long period of time. It doesn't. The only way is by increasing your wealth."

A privately owned, privately managed, competitive economic system has many attributes, Dr. Wolman declared, "but one of them is that the people in charge of the procedures have got to be in a position to make quick decisions. Certainly one of the things is their costs.

"It is the fundamental thing in the conduct of business, and if you take away the right of an employer and management in this kind of competitive economic system to make quick decisions on their costs, you may be doing a fatal thing, and I am quite sure you are, and yet that is the essence of collective bargaining."

Following the address, questions were fired at Dr. Wolman by his audience. In answer to one of these, "Where do we go from here?" he pointed out what he called the original error of making unionism almost compulsory in the United States. A step has been made toward undoing that mistake, he said, and great pains should be taken to make certain that that step is not retracted.

Charles G. Simpson, Jr. (right), chairman, Personnel Committee, who presided at luncheon and Dr. Leo Wolman, Bureau of Economic Research and professor of economics, Columbia University

The fuel outlook

Integrated system of natural gas pipelines needed for defense

BY EDWARD FALCK*

Chief Consultant on Power and Utilities, National Security Resources Board, Washington, D. C.

The United States of America produces and uses more energy than any other nation in the world. This tremendous development of energy is important to our prosperity in time of peace and vital to our national security at all times.

During the past ten years, there has been a rapid further expansion in national energy use which is correlated very closely with expansion of the nation's industrial capacity and over-all economy. Our national wealth and national security will continue to increase just so long as we are able to assure an adequate supply of energy. We must assure this adequate supply of energy at a cost in relation to the cost of other commodities and services that will permit full and intelligent utilization.

Furthermore, we must do this by continuing to develop an economically sound and technically competent fuel industry that will at all times be able to cope with the problems of production, transportation and distribution. All of these factors are important and interrelated—an adequate and low cost energy supply, a strong, sound and technically competent fuel industry.

The prices of coal, coke and coal chemicals, petroleum and petroleum products are not regulated by public authority. The prices of these products are regulated by competition in the market place. The prices of natural gas and electric power, however, are regulated by public authority including both federal and state regulatory commissions.

With postwar inflation there has been a proportionate increase in the prices of anthracite and bituminous coal, petroleum crude and refined products. In contrast with other fuels, the prices charged for natural gas and electric service have remained stationary and, in some instances, they have been reduced. In an article appearing in the July, 1948, issue of "Survey of Current Business," it is pointed out that the relatively high prices of coal have greatly stimulated demand for natural gas. The article goes on to point out that for a group of electric utilities using coal fuel, costs have increased 71 percent per thousand kilowatt hours from 1939 to 1947, whereas for another group of utilities using natural gas there was a decrease of nine percent in unit fuel costs.

Natural gas and electric service are expanding at a faster rate than the other fuels so that these forms of energy are accounting for an increasing percentage of the total B.t.u. equivalent contributed by all mineral fuels and water power.

The Federal Power Commission and some of the state regulatory commissions give a great deal of weight to the concept of orignal cost less straight line depreciation as a base for determining rates. The older pipelines and distributors whose systems were installed prior to the war have a relatively low rate base, and the new pipelines and new extensions to distributor systems have a relatively high rate base. When depreciated original cost is the predominant factor to which consideration is given in fixing rates, the consequence is that very wide discrepancies result in the rates fixed for the supply of natural gas even to the same general region, state or particular locality. If there is any competition or choice allowed, the consumers will place all of their business, to the extent that they can, with the distributor or pipeline that has the lower rates.

From a broader point of view, this type of regulation is having a profound effect upon the economics of the natural gas industry as a whole. For example, one of the older pipelines is today delivering gas to utilities in the Appalachian area at a price of around 18 cents per M.c.f., whereas one of the newer pipelines is delivering gas in the same area at around 27 cents per M.c.f.

Superior fuel

While it may be somewhat of an oversimplification, one might say that through competition the prices of coal and oil tend to approach a level approximating reproduction cost of the service, whereas through regulation natural gas prices tend to approach a level approximating original cost. Today the reproduction cost of industrial and utility facilities is over double the original cost of the same facilities ten years ago.

In 1936, natural gas was considered a superior fuel and was used in the main for only highly specialized uses. On a B.t.u. equivalent basis of comparison, natural gas was somewhat more expensive than oil and substantially more expensive than coal in all areas other than the producing states. Today natural gas is cheaper than oil in most areas and even cheaper than coal in many places.

Abstract of paper presented at general sessions during 1948 A. G. A. Convention.

* The views expressed by Mr. Falck in this article are his own and not necessarily those of the National Security Resources Board.

Perhaps the real difficulty arises from application of the original cost principle to natural gas reserves. There may be some sound argument in favor of applying the original cost principle to the transmission and distribution plant account, but it seems obvious that this principle cannot be logically applied to the valuation of natural gas reserves. It should be noted that the valuation of oil and coal reserves is fixed by the economic forces of supply and demand operating in a free and competitive market.

This question of the proper treatment of natural gas reserves in rate cases is a most important one and is currently receiving increased attention from both the industry and the regulatory authorities. It is significant that ever since the original cost doctrine was upheld as the law of the land applying to natural gas companies, there has not been a single new pipeline built where the pipeline transmission company owned its reserves. All of the new pipeline companies secure their gas supply from other producers and there is no inducement whatsoever for a new transmission company to acquire its own reserves. Some pipeline systems that originally owned reserves have separated out their production properties and distributed the stock interest to their stockholders. This result may not have been deliberately intended and may as a matter of fact not be in the public interest. Something can be said in favor of encouraging pipeline companies to own at least a substantial part of their own reserves in order better to protect future deliveries to the markets that they serve.

The consumers have quickly caught on to the disparity between the prices of natural gas and other fuels, and there has been a virtual "run on the bank" to secure natural gas wherever it is available.

Unfortunately, the development of an increased fuel supply requires not only large amounts of investment capital for physical facilities and construction labor but also a good deal of time. Consequently, an increase in the price of any fuel that is in short supply does not result immediately in increased output. There is an unavoidable and long time lag between the occurrence of increased demand and the initial date of operation of the increased capacity.

During the war, even though requirements increased at a tremendous rate, it was not possible to increase capacity at an equal rate because this would have required too great a diversion of critical materials and manpower away from more urgent and direct war purposes. After the war, the unrestrained competition for steel and labor to supply all types of requirements that had so long been suppressed has made it exceedingly difficult for the fuel industries and particularly the gas industry to catch up with demand.

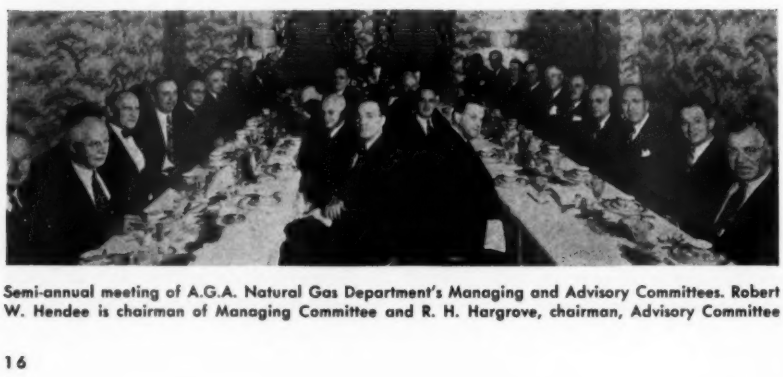
In my opinion the shortage of natural gas will never be overcome until the price charged for natural gas is brought into line with the prices charged for competing fuels.

I believe that if the prices of natural gas are deliberately held down far below the prices of competing fuels over a long period of time, it will become absolutely impossible for the natural gas industry

Committees active at convention

A.G.A. General Promotional Planning Committee, H. H. Cuthrell chairman, planning 1949 program

Laboratories Managing Committee, Arthur F. Bridge, chairman, meeting in Atlantic City to review Laboratories' appliance testing and research program



Semi-annual meeting of A.G.A. Natural Gas Department's Managing and Advisory Committees. Robert W. Hendee is chairman of Managing Committee and R. H. Hargrove, chairman, Advisory Committee

to cope with the requirements for service that will be made upon it by the public. It follows that the industry and the regulatory authorities themselves will be compelled to establish a long-term program of curtailment and allocation which will result in complete and detailed end-use control.

Such programs were developed during the war but at that time they were always conceived and carried out as temporary stop-gap measures. Certainly the War Production Board never entertained the idea that it would be necessary to have the Government allocate the short supply of natural gas indefinitely or for any long-term period of time. The experience gained in curtailment and allocation procedures made it clear to the administrators of these programs that substantial inequities and discriminations would surely result no matter how great the effort was to maintain equity and justice. In wartime at least it is possible to set up certain classes of users to be accorded preference on the ground of the essentiality of their operations to war production. In peacetime the allocation of gas to industry involves "robbing Peter to pay Paul" without any definite criterion or standard for deciding in favor of Paul and against Peter.

In essential utility-type service the traditional regulatory standards regarding obligations to serve and reasonableness of rates are adequate and relevant. For gas space heating these regulatory standards are inadequate and irrelevant.

Space heating service should be priced in relation to the prices of competitive fuels. Utilities should not be obliged to respond to any and all requests for space heating service to the same extent that they are obliged to take care of ordinary utility service requests. In my opinion the gas industry should promptly study this question with a view to recommending satisfactory modification of regulatory standards with respect to space heating.

Therefore, I would recommend to the industry and to the Governmental agencies concerned that the price regulatory function or the rate making function be carefully reviewed in the light of competitive fuel prices and in the light of the mandatory allocations of supply that will inevitably result if the disparity in the price of natural gas, now an already established fact, is continued without change over future years.

It is significant that in spite of rate and regulatory problems and shortages of materials, equipment and manpower, the tremendous postwar expansion of the natural gas industry has been financed almost entirely through private financing. The only major pipeline project that has been built by the Government in recent years is the Big and Little Big Inch pipeline, and even this large project was sold after the war to a private business corporation that was organized to purchase and expand the existing facilities.

The natural gas industry has had to compete for funds in the capital market. Here, because of the relatively low rate of return allowed, many of the natural gas companies in recent years have been compelled to secure a disproportionate amount of the funds required for new construction through the issuance of bank loans, debentures, and other debt obligations. In some cases the ratio of debt obligations to total capitalization has been very high indeed.

In recent months a few of the major companies have announced future common stock offerings, and it remains to be seen how well the market will take these requirements for equity financing. Surely it is important from everyone's standpoint to maintain a sound capital structure for the gas companies. It is unfortunate that the method of regulating over-all rate of return seems to have encouraged debt rather than equity financing, and this question should be scrutinized in connection with any over-all review of existing rate levels and rate regulatory techniques.

While a great construction program has already been authorized and financed, it is certain that during the next four or five years the natural gas industry will require very substantial amounts of capital in order to carry on its expansion program. Natural gas rates and regulatory policies must be so designed as to make investment in the natural gas industry attractive to the investor. The natural gas industry will be competing with the electric power industry, the transportation industry, the telephone and communications industry, and the building industry among others, in the capital markets, and therefore its securities, including common stock offerings, must be attractive to the investing public.

The competition for financial capital has already been reflected in increasing interest rates, and these higher interest

Observations on the gas industry's future

- We must assure an adequate supply of energy at reasonable cost to meet the growing needs of the country.
- We must continue to develop an economically sound and technically competent fuel industry.
- Natural gas shortages will never be overcome until natural gas prices are brought into line with the prices of competing fuels.
- In order to avoid continuing gas shortages and mandatory Governmental allocations, it is recommended that gas space heating be distinguished from ordinary utility-type service and be priced on a competitive fuel basis.
- It is recommended that the industry and the regulatory authorities review existing rate making policies from the standpoint of balanced marketing of fuels, encouragement of conservation and research, and assuring sound financing necessary for the tremendous and urgent construction program now under way.
- We should concentrate on completing every bit of essential pipeline construction in the shortest possible order.
- Deliveries of steel pipe to the natural gas industry should be accelerated in the interest of national security.
- Governmental regulations affecting the gas industry should be made more promotional and less restrictive.
- Natural gas can and should be used to release fuel oil for military and other vital uses.
- Our national goal should be the most rapid possible achievement of the construction program being undertaken by the gas industries. It is the job of business to inform the Government of difficulties and obstacles that may be delaying or defeating the achievement of this goal. And it is the job of Government to eliminate all such difficulties and obstacles through the formulation and execution of an effective national policy.

—Edward Falck

rates are narrowing the margins between the over-all rate of return and the cost of money for fixed-income securities. This has the effect of making the net income available to preferred and common stockholders more speculative and will undoubtedly make it necessary to provide higher yields in order to get new investors to purchase such stocks.

From a purely selfish point of view, it might seem that management would be better off and have fewer headaches if it undertook to stretch out the construction program now under way. Certainly there would seem to be less advantage to management in pushing ahead with accelerated construction in the face of high and rising steel prices, increased interest rates, and advancing construction costs in general. Nevertheless, management is exerting its full efforts to do this because of realization of its public service obligations to meet the demands of the market and to meet them on schedule so far as possible.

Apart from the ordinary obligations of this business which has so much of a public service character, there is the additional obligation to get on with the job for the purpose of strengthening our country and assuring its rapid mobilization as may be required in time of war. In short, the tremendous requirements of military production would make it necessary to curtail the flow of steel for civilian construction, including utility construction.

There would, of course, be exceptions for maintenance and repair and particular extensions to strategic industrial plants, military bases, etc.

Consequently, as a matter of national security it seems that we should concentrate on completing every bit of essential pipeline construction in the shortest possible order. We ought to have all of the pipe delivered and laid in the ground before an emergency arises.

We now have a natural gas construction program that is concrete and specific stretching over the next four or five years. Certainly from the national security standpoint everything should be done that can be done to expedite this program. Of course there are many other expansion programs now being undertaken by American industry that are equally or perhaps more important, just as there are others that are less important. What is needed is a comprehensive over-all study of those industrial programs that are of such vital importance that they should be pushed ahead.

As a matter of fact, we now have an agency of the federal government whose job it is to look into questions of this kind. That agency is the National Security Resources Board. This Board was created by the National Security Act of 1947 to "advise the President concerning the coordination of military, industrial and civilian mobilization." The Board is a permanent civilian agency and reports directly to the President of the United States.

The members of the Board include Arthur M. Hill, its chairman, and the Secretaries of State, Treasury, Defense, Interior, Agriculture, Commerce and Labor. The Board has many specific duties including the formulation of mobilization policies and programs; determination of the status of national resources in terms of materials; industrial plant, manpower, and other essential factors; determining military and essential wartime civilian requirements in event of war; reviewing current problems in the light of our economic readiness for war; recommending to the President specific actions to be taken to overcome existing shortages prior to any future emergency; stockpiling critical and strategic materials; developing detailed plans to cover the administrative machinery that would be necessary in case of war in order effectively to channel and control production for the war effort.

Within the National Security Resources Board there has already been established a Power and Utilities Division. This division is now actively engaged in the study of mobilization problems affecting electric power, gas and water industries.

Specifically in connection with gas, there have been several meetings held by the National Security Resources Board with representatives of the gas industry and a task force, including both industry and government personnel, has been formed for the purpose of reporting on (1) the supply and demand for natural and manufactured gas during the period 1948-52; (2) present planned construction program of the gas industry and specific production or construction bottlenecks; (3) study of gas in relation to coal and fuel oil from standpoint of conservation of fuels most vitally needed for defense; and (4) technological study of new developments affecting future of the gas industry.

The work of this task group is being carried on under the immediate direction of Alexander Macomber, formerly director of the Gas Division, Office of War Utilities, War Production Board.

Without in any way wishing to anticipate the findings of this group, I would like to make two observations about the gas industry and national defense. First, it seems to me that a strong, integrated national system of natural gas pipelines, manufactured gas companies and distributing companies will be a great asset to this country in time of war.

Up to the present time private enterprise has been willing to underwrite the financing of the expansion of this industry, and there is no foreseeable need for Governmental subsidy. The only thing that is needed is to unblock the obstacles to the earliest completion of the construction that has been authorized and is under way. The most important single bottleneck is the shortage of steel pipe. I wish to imply no criticism of the steel industry which has been operating at an all-time high capacity rate. The shortage is merely due to the tremendous demands for steel that are being made by all segments of our economy.

A portion of our total national steel supply is now being allocated through voluntary procedures under the sanction of Public Law 395. The steel requirements of the gas industry have been presented to the Department of the Interior and the Department of Commerce by the American Gas Association and through the National Petroleum Council that was established *(Continued on page 39)*

Freedom

● Proof that families of average means can now enjoy full benefits of all-year gas air conditioning was contained in a "Flame of Freedom House" which was reproduced and demonstrated on the stage of the Atlantic City auditorium during the recent American Gas Association convention. The house was designed by the well-known architect David Searcy Barrow as one of the five-star homes sponsored by *Better Homes and Gardens* Magazine. Designed especially for Servel all-year gas air conditioning, the home cost little more than an ordinary house equipped with a good winter heating plant. Visitors at the convention were shown how the new gas refrigerator assures freedom from the noise and wear of moving parts, and how the modern gas range, gas water heater and gas laundry dryer mean freedom from work and worry, freedom from drudgery and delay.

Left to right: Chairman-Elect D. A. Hulcy; Lyon F. Terry, New York; E. Maurice Myers, Oklahoma City

Fuel with a future

The nation's natural gas industry, currently in the midst of an era of unprecedented growth, proved beyond doubt in Atlantic City last month that it is qualified and eager to tackle the most challenging problems which lie ahead.

Headed by Robert W. Hendee, chairman, Natural Gas Department, American Gas Association, and president, Colorado Interstate Gas Co., Colorado Springs, Colo., some of the industry's outstanding leaders provided an optimistic picture of the industry's ambitious technical research program for combatting the claims of competitive fuels and removing the "bugs" from natural gas production, transmission and utilization.

Presiding at the Natural Gas Department meeting on Monday morning, October 4, Mr. Hendee commended the "attitude of cooperation and mutual aid which has helped so much to push gas into the forefront as the nation's most useful and popular source of heat and energy."

D. A. Hulcy, president, Lone Star Gas Co., Dallas, Texas, and incoming second vice-president of the Association, was elected chairman of the A. G. A. Natural Gas Department for the new year. Nominated to the Department's Managing Committee were: F. C. Brown, president, Natural Gas Pipeline Co. of America, Chicago; Edward Buddrus, president, Panhandle Eastern Pipe Line Co., Kansas City, Mo.; Paul Kayser, president, El Paso Natural Gas Co., El Paso, Texas; F. H. Lerch, Jr., president, Consolidated Natural Gas Co., New York; E. P. Noppel, general consultant, Ebasco Services, Inc., New York; F. T. Parks, vice-president of gas operations, Public Service Co. of Colorado, Denver, Colo.; C. P. Rather, president, Southern Natural Gas Co., Birmingham, Ala.; Gardiner Symonds, president, Tennessee Gas Transmission Co., Houston, Texas, and Paul R. Taylor, vice-president, Consolidated Electric & Gas Co., New York.

Mr. Symonds was chairman of the program committee for the meeting.

With the construction of 3,574 miles of new natural gas pipeline already authorized during the first half of 1948, and sales of natural gas at a record high, heavy new demands have arisen for technical progress. Harry D. Hancock, president, Gas Advisors, Inc., New York, who has served as chairman of the A. G. A. Technical Research Committee since 1942, outlined the activities of this program. Introducing a symposium on the subject, Mr. Hancock discussed the results and future status of the technical research drive.

The symposium itself was divided into discussion of progress in four fundamental fields of endeavor: nitrogen removal, calibration of eccentric and segmental orifices, pipeline flow, and gas well deliveries.

In view of the pressing need for practical and economical methods of removing excess nitrogen from natural gas, work is proceeding in cooperation with the U. S. Bureau of Mines with principal emphasis on pilot plant tests.

Reporting as chairman of the Nitrogen Removal Subcommittee, A. F. Bridge, president and general manager, Southern Counties Gas Co., Los Angeles, Calif., analyzed work using the hypersorption, and the liquefaction and fractionation methods for removing excess nitrogen to improve the heating qualities of the gas and permit recovery of other salable hydrocarbon products. Principal interest in nitrogen removal is centered, he declared, on gas which is produced from the large reserves in the Texas Panhandle and Hugoton fields which contain averages of 12 to 15 percent nitrogen and up to 30 percent in certain areas. Nitrogen removal appears the only practical means of meeting additional demands upon reserves in the near future.

Pilot plant tests simulating actual plant performance are being conducted at the present time using low-temperature processing by liquefaction and fractionation—the most promising method.

M. V. Cousins, United Gas Pipe Line Co., who emphasized the need for good employee relations

A newly developed method, the hypersorption process, employs fractionation of a gaseous mixture on a bed of activated charcoal as a means of effect-

ing separation. It is suitable for large-scale operations and offers possibilities for nitrogen removal from natural gas although, Mr. Bridge pointed out, it appears less favorable than liquefaction and fractionation as regards investment and operating costs. Fuel consumption is also relatively high.

It is hoped, Mr. Bridge stated, that engineering contractors and operating companies, armed with the information obtained from the joint Bureau of Mines—A. G. A. nitrogen removal conference in August, and with favorable results from the pilot plant tests, will be able to reach agreement on terms for a commercial plant.

Development of two orifice designs to overcome the disadvantage of "sharp-edged" or "frictionless" orifices when measuring dust or dirt-laden gas, was discussed by Elmer F. Schmidt, vice-president, Lone Star Gas Co., as chairman of the Subcommittee on Calibration of Eccentric and Segmental Orifices.

Natural Gas Department past-chairmen: (l. to r.) William Moeller, Jr., Southern California Gas Co.; J French Robinson, The East Ohio Gas Co., and George E. Welker, United Natural Gas Company

First of the designs Mr. Schmidt discussed involves offsetting the round orifice in the orifice plate until the pipe wall is tangent to the edge of the orifice at the bottom of the pipe, so that any dirt which would tend to settle to the bottom of the pipe will carry on through the orifice since there is no obstruction to flow on the bottom of the pipe.

The second device is to make the opening in the orifice plate in the form of a segment of a circle with a diameter only a few hundredths of an inch less than the diameter of the pipe and with the solid segment of the circle at the top of the pipe. This also offers negligible resistance to the flow of dirt and as a result can be used for measurement of dirty gases, Mr. Schmidt declared.

Results of 322 test runs using water as the calibrating fluid indicate that the coefficients of discharge for eccentric orifices are as predictable as those of concentric orifices though the values vary slightly.

While it is probable that the segmental orifices are not so easily duplicated or installed for accuracy as are the eccentric orifices, Mr. Schmidt emphasized that "they are still useful for places where the dirt is so wet as to cause difficulty with an eccentric orifice."

Efforts of the Pipeline Flow Subcommittee to provide a formula capable of solving gas flow problems in large diameter high-pressure natural gas lines, were reported by the chairman, C. H. M. Burnham, vice-president and chief engineer, Panhandle Eastern Pipe Line Company.

Mr. Burnham reported the addition of a new and very useful tool to the field of hydraulic research in the use of multiple cameras for the closest approximation to perfect simultaneous readings of pressures.

Investigation by this group showed that previous tests on supposedly smooth pipe had been carried only to flow rates below the minimum rates experienced in most gas transmission lines. Consequently the group decided to initiate research on pipe as nearly smooth as present day manufacturing processes are able to produce. With this in mind, the Naval Gun Factory at Washington, D. C., was asked to construct an experimental steel pipeline, 100 feet long, with every attempt being made to keep the surface roughness below 16 one millionths of an inch.

Completion date for fabrication of this pipe and special couplings is November 19. Shortly thereafter tests will begin at Amarillo to cover the range of flow rates commonly used in the natural gas industry. The experiments should provide valuable information on the maximum possible efficiency of commercial pipe as well as a yardstick with which to gauge the performance of existing natural gas lines.

E. L. Rawlins, superintendent production engineering, Union Producing Co., Shreveport, La., announced that the Subcommittee on Gas Well Deliveries has published 18 reports, all of which involve to some extent the physical chemist's approach to a problem relating to the production of gas condensate fluids from high pressure gas wells.

Work has also been started, he said, on a comprehensive monograph type report on phase relations of gas condensate fluids. Wartime data on the pressure-volume-temperature relations for gas condensate fluids in five different fields on production obtained from eight different reservoirs will be included in the report. This material should serve as a guide for decisions pertaining to the recovery of different kinds of gas condensate fluids from different kinds of reservoirs.

Concurrently experimental work with the "windowed cell" has been continued to obtain additional data on the properties of a gas condensate fluid at the critical state. The information obtained will be used as a correlation aid and will be of benefit in obtaining further data on the liquid-gas ratios of gas condensate fluids at low temperatures.

Another main attraction on the program was an inspiring talk entitled "Continuing Problems in Employee Relations" by M. V. Cousins, director of personnel, United Gas Pipe Line Co., Shreveport, Louisiana.

Stating the general principle that "our employee relations will be the sum of our relations with individual employees," Mr. Cousins listed four main points for bettering employee relations:

1. Encourage the employee to do a bigger and better job through opportunity for advancement;

2. Provide enough additional pay to reward the em- *(Continued on page 55)*

Manufactured gas blueprints expansion

A new conception of the gas industry's energetic research program was supplied by Hugh H. Cuthrell, The Brooklyn Union Gas Co., and chairman, Manufactured Gas Department, American Gas Association, during the Monday morning manufactured gas session at A. G. A. convention. "I look on research," Mr. Cuthrell said, "as an insurance policy for the future for which we pay premiums from present earnings."

Other speakers at the session discussed the market for manufactured gas securities, and analyzed the all-important peak load problem. All three of the subjects discussed on the program are closely connected with a proposed expenditure of more than half a billion dollars on the renewal and enlargement of manufactured gas facilities during the next five years.

Mr. Cuthrell, who was elected first vice-president of the Association, selected as the title of his talk, "Research and Promotion—An Investment in Security." At present four main research committees are active under the PAR (promotion, advertising and research) Plan.

A total of 12 projects are currently sponsored by the first of these groups—the Gas Production Research Committee, he stated. Five of these are major production engineering projects directed to various aspects of the peak load problem, and two are long-range research projects investigating fundamentals of the reactions between carbon, steam and oxygen.

Four major projects ranging from pipeline flow at high pressures to nitrogen removal from natural gas with by-product recovery of LP-gases are sponsored by the General Technical Research Committee, A. G. A. Natural Gas Department. The largest number of projects, 23 in all, is sponsored by the Domestic Gas Research Committee. These may be grouped under the headings (1.) cooking (2.) water heaters (3.) central heating (4.) burner design problems and (5.) miscellaneous projects.

Six investigations in different fields are currently sponsored by the Industrial and Commercial Gas Research Committee. Of particular interest are the following projects: Hall high B.t.u. oil gas process, fluidization, coal gasification, tar investigation, mixed gas research, and others.

"Our promotional program has given us new stature in the business world," Mr. Cuthrell observed, "and it has sold gas. It has identified us in the minds of the consumers as a modern industry interested in the needs of modern living. There are good documentary cases on record as to what happens to a business that stops its advertising and promotional program. There is economy, perhaps, for a short period—then disaster.

"I honestly believe," he concluded, "that the gas utility industry can make its best contribution to American life by setting an example based on positive research and promotion—an example of enterprising activity in behalf of its stockholders, employees and public—by every day actions which prove that an alert and useful industry is the best antidote for fuzzy foreign ideologies."

One of the country's leading financial experts, Edward Hopkinson, Jr., Drexel & Co., Philadelphia, announced that the industry's present favorable growth trend must be maintained at profitable rates and control over costs re-established in order to improve the acceptance of manufactured gas securities. Mr. Hopkinson is a former partner in J. P. Morgan & Co., a past-president, Investment Bankers Association of America, and a member of President Truman's Advisory Committee on Conduct and Financing of U. S. Foreign Trade.

Mr. Hopkinson described the half-billion dollar sum which manufactured gas utilities propose to spend on new and enlarged facilities during the next five years as nearly one half the present depreciated capital investment in these facilities. This indicates, he said, a rate of construction far exceeding that of any similar period.

The industry's total capital requirements for the next five years have been estimated at $3,300,000,000. Included in the $530 million estimated for the manufactured-gas industry is approximately $420 million for gas plants required by combination gas and electric companies, and $110 million for straight manufactured-gas companies.

"The substantial sums needed cannot be supplied out of earnings or out of

E. G. Boyer (right), Philadelphia Electric Co., whose speech on the peak load problem was a highlight of the manufactured gas session, and R. L. Presbrey, Boston Consolidated Gas Company

Edward Hopkinson, Jr., Drexel & Co., Philadelphia, focussing attention on manufactured gas securities

appropriations to reserves for depreciation. The former source is shrinking, and the latter source will furnish only a fraction of the total requirement. It should also be noted that in spite of their need for capital funds, the manufactured gas companies generally have been paying out in dividends a higher percentage of their earnings than the purely electric companies or natural gas companies.

"Even in joint companies," he added "the requirements of the electric division are so great that the gas division may no longer be able to rely on the investor's confidence in the former, to make available its heretofore modest capital needs. It is, therefore, of paramount importance to the gas industry that there exist a favorable market for the sale of its own securities, based on its own record, to finance this essential construction program."

The acquisition of adequate supplies of natural gas by the manufactured gas industry should prove a decisive factor, he declared, in attracting capital to replace obsolete equipment.

E. G. Boyer, Philadelphia Electric Co., and chairman, Gas Production Research Committee, in his address "Meeting the Peak Load Problem" directed attention to some of the most cogent points of that problem.

Under the general heading of higher rates for gas heating, he discussed the impact of projected increases in the number of dwelling units and indicated that (omitting natural gas from the picture) rate increases already obtained are offset on gas made by existing apparatus and are inadequate if new apparatus is contemplated.

Part of the paper was devoted to a review of new gas making processes, with particular emphasis on catalytic cracking units which fit very well into the picture. He mentioned the possibility of using combination oil and gas burners and pointed out the advantages and disadvantages of that scheme. The effect of natural gas delivery to the Eastern Seaboard was also discussed and attention called to the use of natural gas as an enricher, for reforming both in water gas sets and catalytically.

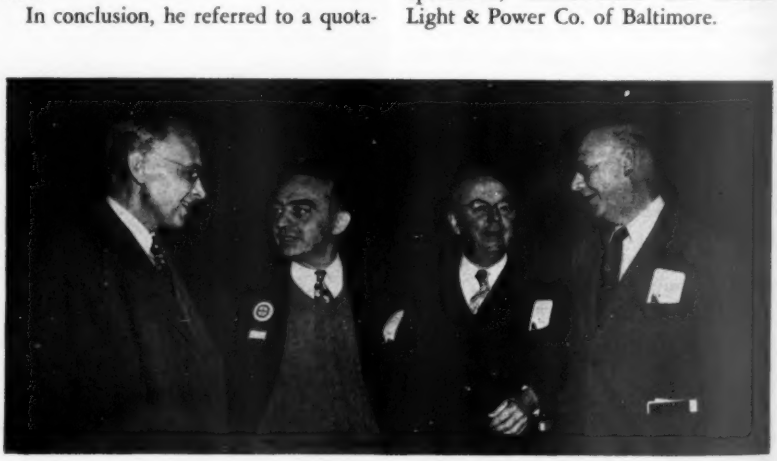
The provision for storing several billion cubic feet of natural gas in or near the Eastern Seaboard is of paramount importance, he declared. A chart accompanying the paper indicates the control of production and also the mixing of supplementary gases to meet sendout requirements.

Based on the economical mixing of the various gases, this chart showed the utilization of coke oven gas, carburetted water gas, oil gas, reformed oil gas, natural gas-air and LP-gas-air, and producer gas as the load increased to a maximum. The proper preparation and use of such a chart, Mr. Boyer remarked, thus enables the operators to produce, at optimum cost, the required quantity of gas at any level up to the maximum load.

In conclusion, he referred to a quotation from the poet John Donne, "Never send to know for whom the bell tolls; it tolls for thee." If a bell is tolling for the gas industry, it is not tolling a knell, he said, but rather it is "ringing in a period of opportunity—of opportunity for sound growth and expansion such as we have not experienced since before the depression."

The following gas men were elected to membership on the Department's Managing Committee: E. C. Brenner, chief engineer, Milwaukee Gas Light Co.; Walter S. Byrne, general manager, Metropolitan Utilities District, Omaha, Nebr.; E. W. Doebler, vice-president, Long Island Lighting Co., Mineola, L. I.; Leo H. East, general superintendent, gas division, Rochester Gas & Electric Corp.; Harland C. Forbes, vice-president, Consolidated Edison Co. of New York, Inc.; N. Henry Gellert, president, Seattle Gas Co.; G. M. Johnson, general gas superintendent, Northern Indiana Public Service Co.; Karl B. Nagler, vice-president, The Peoples Gas Light & Coke Co., Chicago, Ill.

Also Robert H. Philipps, Jr., general manager, gas department, Public Service Electric & Gas Co., Newark, N. J.; John V. G. Postles, vice-president in charge of production, The Philadelphia Gas Works Co.; R. L. Presbrey, vice-president, Boston Consolidated Gas Co.; R. J. Rutherford, vice-president, Worcester Gas Light Co.; H. B. Thomas, vice-president, Peoples Water & Gas Co., Miami Beach, Fla.; E. J. Tucker, vice-president and general manager, Consumers' Gas Co. of Toronto, and John H. Wolfe, general superintendent, gas operations, Consolidated Gas Electric Light & Power Co. of Baltimore.



Delegates: (l. to r.) S. S. Tomkins, Consolidated Edison Co. of New York, Inc.; C. C. Russell, Koppers Co., Inc.; J. G. Sweeney, The Brooklyn Union Gas Co., and K. E. Baird, Philadelphia Coke Company

Both offensive and defensive planning are needed

Protecting the commercial load

BY EVERETT J. BOOTHBY

Vice-President & General Manager, Washington Gas Light Co., Washington, D. C.

Everett J. Boothby discussed commercial gas load during convention general session on Wednesday

Economic conditions have produced a situation in which the public is clamoring for gas for heating. At least for the present, public acceptance of gas heating is at an all-time high. We have devoted much effort and expended much money under well-conceived plans which center in the American Gas Association, toward the end of preserving a healthy status for our residential kitchen load, and with good success. Under the same plan of action, we provided that this be done also for our commercial load. However, the limits within which it has been necessary to work have been so narrow that the time has come to ask ourselves whether we may not later regret not having sooner broadened the scope of this work in behalf of the commercial load.

The commercial load of the gas industry has good load factor characteristics and produces a substantial part of our total revenue. It represents a very profitable part of our business and is a most valuable asset.

When we possess something of substantial value, it is axiomatic that we should take all legitimate precautions to protect that item. If that item of value is one of the best profit producing branches of a given business, the management of the business has a clear obligation to take steps to preserve the continuity of those profits for his over-all operations.

This problem of affording adequate protection to our commercial load is of sufficient magnitude, that I doubt if any of our companies working individually can provide what is obviously necessary. I still believe, however, that we have no problem that the combined brains of the people in this industry cannot solve.

We have witnessed the growth of our commercial gas load to a point where we have been recognized as the undisputed leader in every matter related to the fuel requirements of those classified as our commercial cooking customers. Now we have also witnessed the appearance of a much-heralded competitor.

We would be less than realistic if we did not recognize that commercial electric cooking and heating devices are now developed to a point of efficiency and satisfaction never previously reached and are being mass-produced at lower and lower cost; and that "radar" food preparation is with us. Along with both has come a selling and promotional program for which we cannot but have genuine respect.

For the benefit of some who may not have given too much thought to the subject, I suggest that if you were to thoroughly analyze the costs you incur, both capital and operating, in serving the several classes of your sales which go to make up your total load, if you were to analyze those costs in relation to the revenues you derive from each class of sale, you would be surprised to discover what *net* the commercial load is turning into your coffers.

You would find, in most instances, that the return on your investment to serve the commercial load is probably from one and one-half times to two and one-half times the corresponding figure for your residential load.

We can follow either of two courses. Do nothing or do something. If we do nothing more than we are doing, then the developments of competitors are likely to outstrip us. If we elect to follow the other course—do something—then the problem appears to divide itself into two parts, first, immediate protection or defense; and second, longer range planning and development, or offense.

Long-range offense

To maintain our position of present leadership, plans for both defense and offense must be developed concurrently. Defense must be immediate or short range. Offense should be long-range. I refuse to subscribe to the theory that in any phase of our business we must devote time and energy to the development of long-range *defensive* plans. Instead, we must think in terms of long-range *offense*. But let's forget the terms defense and offense and say we have two jobs to do, immediate and long range.

The bulk of our total commercial load is made up of commercial cooking and it is there that we must concentrate our attention. With respect to the *immediate* job the situation appears to be about this: Conventional competitive cooking equipment is being sold and it is claimed that the following points are in its favor:

Presented at convention general sessions.

(a) that better cooking results, particularly baking and frying, may be obtained, (b) that it affords greater conveniences of operation, (c) that it results in greater comfort of operation, (d) that it is less difficult to keep clean, (e) that its general appearance has greater appeal, (f) that it is "modern" and has more glamour, (g) that electric cooking equipment if installed, complements other power equipment in the same establishment, and will result in overall lower average cost of power to the user; (h) that the industry behind such equipment has greater progressiveness.

These claims are being made in behalf of competitive equipment and they are being stressed by very able sales engineers. We know that these claims are all answerable.

Without recognizing their validity, let's examine some of these points. First, that better cooking results, particularly baking and frying, may be obtained. When certain older types of gas equipment are compared with certain newer types of competitive equipment that possibly may be the case, but viewing the picture as a whole, when well-designed, well-manufactured and up-to-date equipment of both types is compared, the allegation that better cooking and baking results can be obtained from competitive equipment is *debatable, to say the least.*

As to this claim that better baking results can be obtained with competitive equipment, let's not throw overboard the old slogan, "If it can be done with heat it can be done better with gas." Let's be sure that we can demonstrate the truth of the present slogan "Gas Has Got It."

To place us again in a position where there is no doubt, we have to face the fact that there is a further development and design job to be done, and that this job involves both the company members of this association and the manufacturers of heavy-duty equipment. The job calls for a correlation of effort and thinking and indeed a meeting of the minds among the heads of these two groups. The important thing is for us to recognize that this will never happen of itself, and that it will not happen until someone takes the initiative in correlating the thinking of the leaders of the two groups.

Let's look next at the second item, the point that competitive equipment offers greater convenience of operation. True, competitive equipment is push-button and switch-controlled, while ours has its problems of ignition, and adjustment, but, unless we drift completely, there is nothing in these factors that combined intelligence and further effort on the part of the manufacturers and the companies in the industry can't overcome.

With diligence, ignition can be made foolproof and the development of adequate controls can minimize adjustment troubles. Here again as in the first item, joint efforts between leaders of operating companies and leaders of manufacturers are imperative. Such joint efforts need to be initiated and accelerated.

Then it is claimed that competitive equipment affords greater comfort of operation. When that point arises to plague us, we usually discover that the claim has been made in behalf of a new blueprint layout incorporating up-to-date competitive equipment with a proposed new and different ventilating system, all on paper, and that the expected results to be obtained from such a blueprint setup are in comparison with old, probably outmoded, gas equipment and the existing antiquated ventilating system, if any.

Here again we have a job to do. The manufacturer must make further progress in equipment efficiency and controllability, but more particularly must the companies' management see to it that their commercial sales engineers are qualified in the art of laying out kitchens plus modern ventilating systems, and get on the job ahead of the other fellow with their proposals and reports.

Importance of the industrial market

● In looking ahead, we must set our sights at high level gas sales. Our industry has effectively demonstrated its ability to grow, to progress and to render service. Our potential for future development is excellent but we must be aware of the responsibilities which come with growth.

The benefits which low-cost, highly efficient gas fuel offers to industrial and domestic consumers alike are simply unlimited. In recent years the industrial market has become a greater revenue producer. *Industrial* gas sales are important to the domestic user and to the community as well as to the company. The responsibilities of this larger load are those of service. That word is the slogan of the gas industry.—Frank H. Lerch, Jr., *Consolidated Natural Gas Co., at Industrial and Commercial Gas Section, A. G. A. convention.*

Safety

● It is true that the working environment must be safe. It is also true that men must be fitted to perform their jobs safely and they must know how to perform the work safely, but all that, though essential, is not enough. *Men must want to work safely.* Then we will have safety. —D. C. Stewart, *Niagara Hudson Power Corp., at Technical Section, A. G. A. convention.*

Space does not permit me to analyze all the remaining claims item by item, nor will I discuss the advantages on the side of gas equipment that are irrefutable. Just to mention a few of these, we still have the advantages of familiarity of users with gas equipment. We have generally a lower cost fuel. We have lower first cost of equipment, confidence in our service based on past performance, and in most instances we have a better setup of facilities for servicing.

But again I say we would be less than realistic if we did not recognize that the margin of the advantages which gas commercial equipment and service has always enjoyed, is narrowing and possibly narrowing too rapidly. Competitors have come to appreciate the value to us of our commercial load and they are taking heroic steps to acquire some of it for themselves. In their efforts they are willing to spend a lot of money. The several manufacturers of national repute are their powerful and influential allies.

For answers to many of the problems facing us, you have only to look to your own commercial representatives. If they have carried on contacts with corresponding employees of other companies, and most of them have; if they have participated in the industry's association work devoted to the commercial gas business, and many of them have, then they know the answers. The trouble is that while they are full of ideas, the solution of the problem requires also that they have your backing, the benefit of your know-how to supplement theirs, the authority which you possibly should have delegated to them and haven't, all to be put together in the formulation of a broadened but specific industry program in which the leaders of the heavy-duty equipment manufacturers also must be invited to participate. Such a broadened program should be carried out preferably by means of the existing machinery

already in operation within our Association, and to be directed toward clearing up a series of problems that are now in the category of "no man's land," including establishing more definitely, if possible the responsibility for servicing commercial appliances.

Modern commercial cooking appliances, purchased because of their excellence in grade and performance, are easily ruined by poor installation and service. These modern appliances, fully insulated, equipped with sensitive thermostats and controls and efficient burners, are entirely dependent upon correct volume and gas pressure for satisfactory performance.

Special care and attention are needed when new appliances are to be installed, either in a new place, or as a replacement in an existing one. That care and attention specifically should cover adequacy and correctness of piping and meter sizes, flues and other appurtenances to satisfactory operation. Properly serviced gas appliances *never* lose their initial efficiency—as contrasted with competitive fuel equipment.

It is significant that, in a recently studied series of service inquiry case histories, nearly 100 percent of the complaints were caused by incorrect installation and poor service.

Recommendation that proper safeguards be set up to insure adequate fuel supply, is based upon sound economics. If your customer is satisfied, you have retained a good customer. If not, you will lose a customer, or will have set up a potential loss.

The proper safeguards should seek ways and means of learning of new installations, provision for education of plumbers and installers, provision for initial adjustment, provision for advice and assistance to both customer and supplier.

In practically every case of loss to competitive fuels, the competitive fuel gain has been a dissatisfied gas customer—dissatisfied because of inadequate service.

A commercial gas appliance is satisfactory to the user and the user is a sure customer only if the appliance is correctly adjusted. It matters not who adjusts it, whether it is the gas company, a non-affiliated local service company or a national service company.

If such service companies operate in our respective territories, our people should know them and make it a point to be sure that they have the "know-how" to keep the appliances they service in correct adjustment and good operating condition at all times. They should be regarded as an ally of our industry only when they are qualified to do servicing work continuously and well.

These are all problems which are directly related to the protection and development of our commercial gas load and they are problems which may be worked upon *now*, both within our respective companies and industry-wide through our Association.

Now let's leave for a moment the immediate view and look aggressively into the future.

A few weeks ago I attended a meeting of mixed utility gas, electric, telephone and transit people. The attendance was predominantly made up of other than gas men. The meeting was addressed by a representative of one of the well-known electric equipment manufacturers. In his address, which was one of the best I have heard in a long time, he frankly and very calmly discussed the status of some of their current developments. None of the current developments that he discussed, disturbed me particularly from a competitive point of view, provided we in the gas and gas equipment manufacturing business remain alert. But what he did refer to sketchily as developments they have under way not yet at a stage to discuss in detail publicly, had this effect on me—that we had better follow the "do something" course I have previously referred to.

We had better formulate some long-range plans not only to hold, but to further increase and develop our commercial gas load. This operation should be planned carefully and well in advance. Its initial pressure must be well-timed.

It behooves us then to provide good generalship at the highest level. Those at the highest level must be fully cognizant of the plans, and they must place their full support behind the execution

Great interest in the displays of latest gas equipment at the A.G.A. convention was shown by master plumbers from the Queens and Kings County territories of The Brooklyn Union Gas Company. Shown above are some of the 38 dealers who hired a special bus as transportation to Atlantic City

Industry on parade

(Continued from page 7)

added, "the biggest asset we have is the undeveloped ability of the people." He concluded that we are on the threshold of a new world, the like of which no one has ever conceived and the men who will lead the way will be those who brought us to our present high state—the men who sell.

The business program of this notable thirtieth annual convention came to a close with the report of the Time and Place Committee by the chairman, F. X. Mettenet, vice-president, The Peoples Gas Light and Coke Company. His recommendation that the thirty-first chapter in A. G. A.'s book of progress be written the week of October 17, 1949, in Chicago was unanimously approved.

John A. Robertshaw (left) retiring president of GAMA with Frank J. Nugent, president-elect

of the program. That offensive must start while we still have the upper hand. It cannot wait until we have lost too much ground or until others have more and better weapons. The time to begin long-range action is now.

I recommend that our long-range objectives in the commercial field be these (and with no emphasis on the order of their numbering):

First—Make sure that we and the manufacturers are sufficiently insuring the future of our business with adequate and proper research and development work.

There is no more firm believer than I in the theory that the utilities should not try to do the research and development work that ought to be carried on by the manufacturer as part of his scheme of private enterprise. But perhaps there is a stake in the future of our commercial gas load that warrants closer collaboration between us and the heavy-duty equipment manufacturers in the matter of research and development than may have existed heretofore.

We have our research committees and nominal appropriations with which to carry on cooperative commercial equipment research. Those who are directing this work are carrying on commendably within the limits that we provide.

Second—Develop along with the manufacturers, a definite program to remodel or modernize every item of commercial equipment on our lines. And when I say modernize, I don't mean to replace a 1938 model of heavy-duty range with a 1948 model, which is basically identical. What we must shoot at is fully automatic, streamlined equipment such as the restaurant industry has told us it wants.

Reeducate thinking

Third—Reeducate the thinking of our people with regard to functional organization of food producing establishments. The development of cooking centers, baking centers, roasting centers, frying centers, and the adaptation of specialized equipment to each function is the coming thing. Competition is concentrating on it. We should move quickly if we wish to continue to keep the load.

Fourth—Prepare to double our sales of gas per commercial customer. Through well-planned promotional and engineering efforts we can saturate the commercial field where there exists large demands for hot water, steam, space heating and air conditioning. As yet, as an industry, we have not scratched the surface in these prolific markets.

Fifth—Take a new look at our future responsibilities in the matter of keeping commercial gas equipment in proper operating condition. The security of our commercial gas business in both the immediate and long-range future depends not only upon what program of research development sales and promotion we formulate now but also upon this other very important factor—that of finding ways and means to be sure that commercial gas equipment is kept in proper operating condition. This is essential. It therefore directly becomes the duty of members of management who are near the top, to keep the element of servicing of commercial appliances in proper balance with sales and the other factors. There is of course difference of opinion among our companies as to how far they should go in servicing commercial appliances.

If we believe we should do the job then we should modernize our methods and do it well. If we want to get out of the servicing field, then we must prepare others to succeed us.

Sixth—Re-evaluate the economics of the commercial gas business. What are we spending in sales effort per dollar revenue? How does it compare with other classes? Could we not afford much better sales coverage so vital in a profitable market? What are we spending in servicing cost per dollar revenue by comparison with other classes of load? Could we not afford much greater care of gas burning appliances where gas is sold in large volume at a high load factor at good rates?

Seventh—Bring about much closer and better working relationships in the commercial field between leaders of the gas utilities and leaders of the appliance manufacturers. This objective could well be the cornerstone of our long-range planning. I am convinced that a more complete degree of understanding between these two segments of our industry would go far toward solving one of our great problems, the "unbalanced responsibilities" which are found today in the following unanswered questions:

Why is it that so many commercial appliances are not A. G. A. approved?

Who is responsible for adequacy of installations?

Who is reponsible for the adequacy of pipe sizes supplying commercial appliances?

How far can each go in improving equipment?

Who should maintain appliances?

What should be the relative share of promotional effort?

What can one give and expect in return from the other?

Our manufacturers know how acute each of these questions really is and how vital and urgent it is to get them answered. Are we utility men equally aware that these matters cannot be left unsolved?

Just as we devote our time and energy day by day to matters of system development, procurement of materials, procurement of capital, rate matters and labor contracts, so must we the management, keep our finger continuously on the pulse of the major components of our gas market.

If there is merit in the idea of taking steps to preserve the security of this commercial gas load, then it is indicated that members of utility management have another assignment to take on and it must be taken on immediately and vigorously. If it is left for George to do, it will probably not be done.

How to provide for depreciation

● It is my opinion that if and when there is a stabilization, that price levels are going to be not less than 50 percent in excess of those prevailing during the period of war price and wage controls. To accomplish even this reduction from present average levels, we must have a return on the part of labor to a willingness to do a fair day's work for a fair day's pay, and management must come through with substantial technological improvements to reduce the present costs of production.

With every unit of production a portion of the depreciable plant is used up either as a result of wear or the element of time. If a business is going to continue it must provide the funds to assure the replacement of the tools of production either from earnings or by new capital. Recovery of cost will no longer provide sufficient capital to make possible the replacements. It is my opinion that current production costs should include a charge sufficient each year to provide in present dollars for that portion of the plant currently used up in service.—A. B. Hossack, *president, American Appraisal Co., New York, at general sessions, A. G. A. convention.*

Hall high B.t.u. oil gas process

Test results of new regenerative process for making 1,000 B.t.u. gas using oils

A PAR activity This project was suggested and designed by E. L. Hall, formerly secretary-coordinator, Gas Production Research Committee, for using high coke oils for production of high B.t.u. gas based upon fundamental principles.

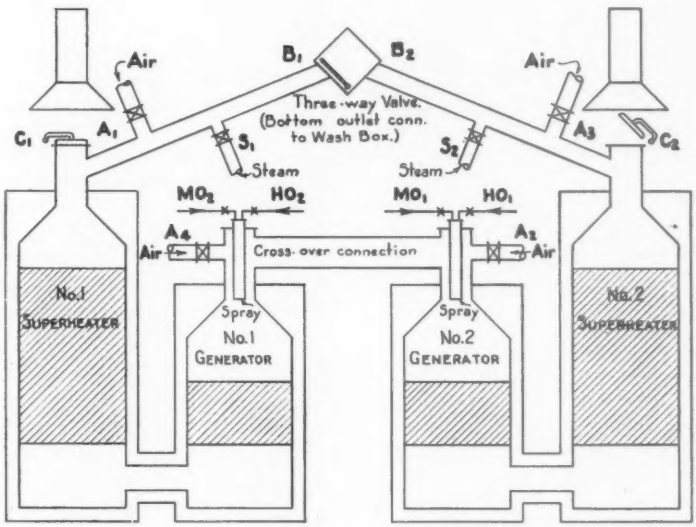
A regenerative cycle was designed which was expected to maintain relatively low temperatures in the top of the superheaters and relatively high temperatures in the generators, a condition known to be favorable for oil cracking. This was to be accomplished by the admission of air into the top of the superheaters which would cool them and also provide a source of preheated air for burning carbon from the base of the superheaters and the generators where the carbon deposits would be heaviest. Similarly, the introduction of steam into the superheaters would result in a superheated steam atmosphere, again a favorable condition for oil cracking.

After the completion of the design and its acceptance by the committee, an inspection was made of several plants to select a location at which to make a plant scale test of the equipment. The Spring Gardens Plant of the Consolidated Gas Electric Light and Power Company of Baltimore was selected because of the interest of the Baltimore operators in producing high B.t.u. gas and because certain sets could be readily adapted and plant equipment diverted for the test.

The original plans called for performance of the tests during the summer of 1947, but due to the difficulty of obtaining the equipment required for conversion the completed set was not ready for operation until early fall, 1947. Because of the limited time available before the winter load, it was impossible to segregate the necessary condensing and metering equipment to start the formal tests until June, 1948. The machine was operated without metering during the winter period, however, to meet the load, and valuable experience was gained in checker performance, cycles, temperatures and set restrictions, all of which contributed toward a more satisfactory test during the past summer.

When the machine was put into operation in 1947, it was operated for a few days using gas oil and was then changed to operation with a heavy oil having approximately six percent Conradson carbon content. This type oil was used throughout the winter and consequently by the time the official tests were started in June 1948, there was no doubt that the machine could be relied upon to operate continuously and satisfactorily on oils up to six percent Conradson carbon content. There remained only the problem of making tests with different types of oil up to six percent carbon content to determine accurately the gas making capacities, operating data and pertinent chemical analyses and to test the machine on Bunker "C" oils having a Conradson carbon content as high as 13 percent.

The machine consists basically of the carburettors and superheaters of two adjacent water gas machines. The former generators were physically disconnected



Schematic diagram of Hall oil gas process

Results from the new Hall high B.t.u. oil gas process indicate:

- Fuel saving of at least 30 percent.
- Increased thermal capacity of 35 percent.
- New design equipment cost cut in half.
- Higher B.t.u. gas increases the capacity of plant and distribution piping.

Final (summary) report to the A. G. A. Gas Production Research Committee on Research Project HB-1, presented by C. E. Utermohle, Consolidated Gas Electric Light & Power Co. of Baltimore, during October 5 Technical Session at A. G. A. convention.

and were not used in the oil gas process. A large crossover connection was installed between the tops of the two carburetters (which are now called generators). A three-way valve with a bottom outlet to a single washbox was connected to the tops of the superheaters. Because the single washbox was a "bottle-neck," this was later changed to utilize both washboxes in parallel from the same three-way valve outlet. Combination "make oil" sprays and "heat oil" burners were installed at the top of each generator. Air connections were made at the tops of each of the four shells. Steam connections were made at the top of each superheater.

During the test period the gas produced on this machine was completely segregated from all other gas produced in the plant and was metered by Connersville positive displacement meters. The gas segregation was effected by the installation of blanks in the gas mains or by valves which were sealed by a continuous flow of water, the water overflowing from a standpipe so that a visual check could be made of the valve seal at all times. The gas flow was from the washboxes of the machine to condensers, to relief holder, to exhauster, to electrical tar precipitator and to Connersville meter. It was only after metering that the gas was mixed with the balance of the plant production and the hydrogen sulfide removed.

The metered volumes were all corrected to a purified basis and to standard conditions (60°F, 30" Hg). All tests of gas quality were made on samples obtained at the point of metering. It should be noted that the gas at this point had not been subjected to oil scrubbing for gums and light oils and therefore the results reported are for unscrubbed gas. The effect of scrubbing will be discussed later. In addition to the gas segregation, the tar drain lines from the washboxes, condensers, relief holder and electrical precipitator were arranged to flow into one tar separator which was used only for the purpose of collecting the tar from each test. The tar from each test was dehydrated separately and the tar plus the light oils distilled off during the dehydration process were gauged into clean tanks. At the end of each test, samples for analysis were obtained of the tar and light oils as they were pumped out of tank.

Five oils were tested having Conradson carbon contents of 0.2, 3, 6, 13, and 13 percent, respectively. Each test lasted approximately one week.

The cycle used was four minutes for the complete blow and make in each direction or a total of eight minutes for the complete regenerative cycle. The cycle consisted of approximately 50 percent blow time and 50 percent make time. However, the blow time was slightly shorter for the two heavy higher carbon oils because the quantity of oil that could be utilized was smaller and less blow was necessary to maintain set temperatures. In these tests the additional time was added to the oil injection period to permit lower oil injection rates.

The sequence of operations is as follows (See accompanying diagram):

1. *Blast period to heat No. 2 generator and No. 2 superheater.*

Stack C_1 is closed, stack C_2 is open and the back run gates are against seat B_1 during this period. Primary air is admitted through valve A_1 to scurf the carbon deposit from the checkers in No. 1 superheater and No. 1 generator. Secondary air is admitted through valve A_2 and heat oil is supplied through valve HO_1. At the end of the blast period valves HO_1, A_1, A_2 and C_2 are closed.

2. *Make Period in No. 2 generator and No. 2 superheater.*

Steam valve S_1 is opened and make oil valve MO_1 is opened to supply oil to No. 2 generator. The make gas leaves the top of No. 2 superheater and passes through the back run valve to the washboxes. During this period carbon is deposited on the checkers in No. 2 generator and No. 2 superheater. At the conclusion of the make period valves MO_1 and S_1 are closed and the three-way valve gates are moved against seat B_2.

3. *Blast period to heat No. 1 generator and No. 1 superheater.*

Stack C_1 is opened. Primary air is admitted through valve A_3 to scurf the carbon deposit from the checkers in No. 2 superheater and No. 2 generator. Secondary air is admitted through valve A_4 and heat oil is supplied through valve HO_2. At the end of the blast period valves HO_2, A_3, A_4, and C_1 are closed.

4. *Make period in No. 1 generator and No. 1 superheater.*

Steam valve S_2 is opened and make oil valve MO_2 is opened to supply oil to No. 1 generator. The make gas leaves the top of No. 1 superheater and passes through the three-way valve to the washboxes. During this period carbon is deposited on the checkers in No. 1 generator and No. 1 superheater. At the conclusion of the make period valves MO_2 and S_2 are closed and the three-way valve gates are moved against seat B_1.

Now the machine is ready to repeat step No. 1.

Cracking temperatures were varied slightly depending on the type of oil used. The average temperature maintained at the bottom of the superheaters (the control point) was approximately 1600°F. The top superheater averaged approximately 1200°F, due to the regenerative cycle and this resulted in considerable heat economy.

The blast rates used were approximately 16,000 c.f.m. primary air at the top of the superheater and 12,000 c.f.m. secondary air at the top of the generator, making a total blast rate of 28,000 c.f.m. The steam rates used were approximately 90 pounds per minute during the oil injection period and 200 pounds per minute after the oil injection period. The higher rate was used to purge the set as rapidly as possible before the blast period.

Superheaters were checkered with 36 courses of first quality fire-clay brick as follows: Bottom 12 courses, three-inch space; middle *(Continued on page 54)*

Catalytic Cracking

● A dramatic operating pilot plant of a new gas producing process to meet the peak load requirements of gas utilities was demonstrated by Surface Combustion Corp., Toledo, Ohio, at the Gas Appliance Manufacturers' Association Exposition in Atlantic City last month in conjunction with the American Gas Association Convention.

This "catalytic cracking process" for fuel gas production was installed in early January this year in the Riverhead plant of the Long Island Lighting Company.

Commercial propane was used by the Surface Combustion engineers in their demonstration plant at Atlantic City to supply many different types of fuel gas, as requested by visitors to the Exposition. The gas produced was burned off in a flare over the pilot plant.

An animated flow diagram of the Long Island Lighting Company installation, as well as a flow diagram of the process, were also shown. This plant, the first commercial installation of its type, is considered extremely successful in meeting its function of increasing the peak load capacity of the system, at the end of a long transmission line, with a minimum capital investment.

Canada nears 'big inch' age

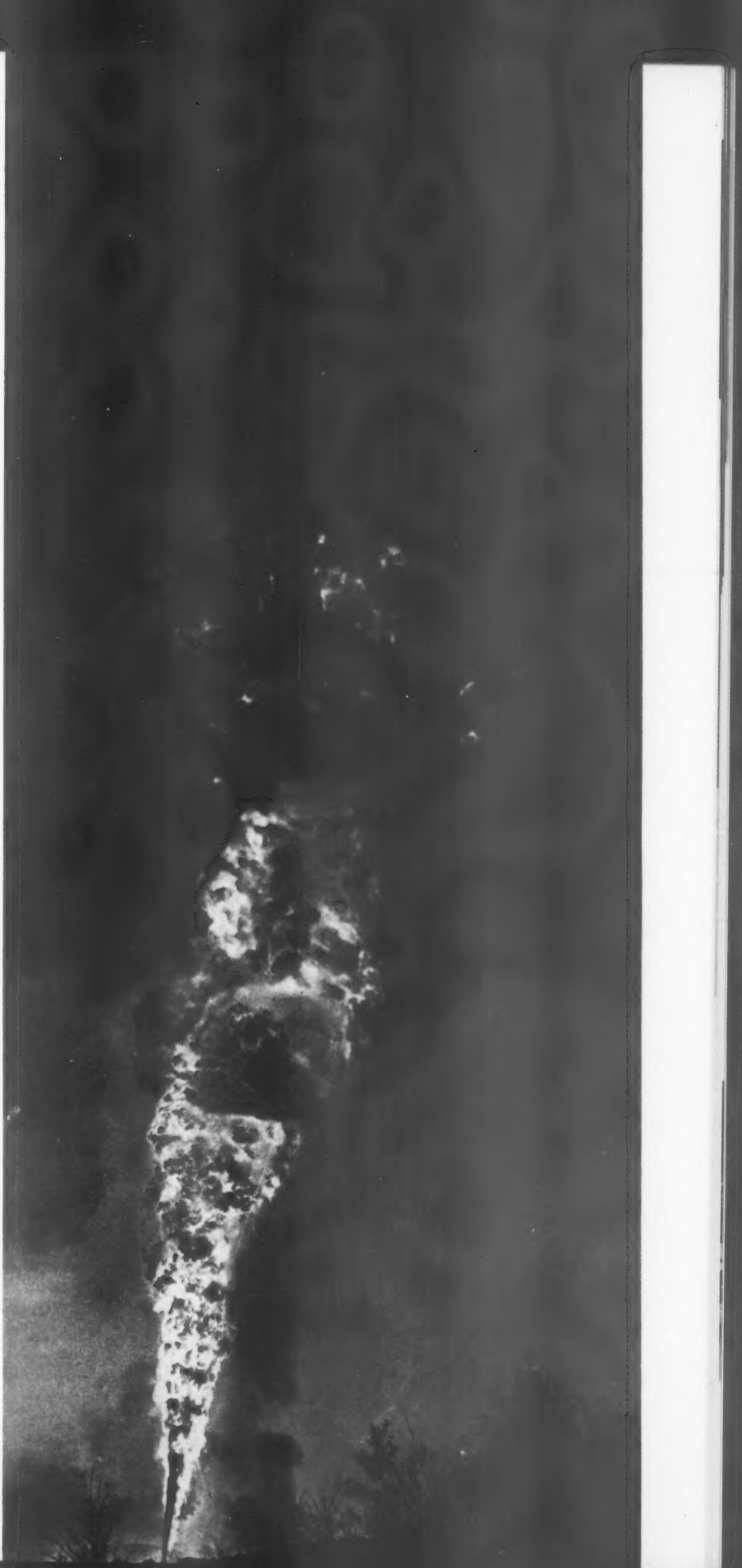
BY JOHN E. KELLY

Consulting Engineer, Pittsfield, Mass.

Canada stands on the threshold of the Big Inch Age. Preparatory to consideration of applications for export of Alberta's natural gas to Winnipeg, Vancouver, and Seattle, with one applicant asking supplies for San Francisco, E. N. Tanner, Minister of Lands and Mines, Edmonton, has appointed a Board to survey the gas resources of the Prairie Province. In neighboring Saskatchewan, Bata Petroleum Co., with a reported 140 million cubic feet open flow shut in for lack of transmission, is preparing to serve the city of Saskatoon as soon as pipe is available.

In the six months ended June 30, 1948, Alberta's wells produced 30,161,467 M.c.f., an increase of ten percent over the corresponding period of last year. Deducting gas used in drilling and in absorption plants, etc., local utility consumption accounted for 23,245,572 M.c.f.

Alberta is "natural-gas-minded." Nearly every *(Continued on page 48)*



New gas well in northern Alberta being fired briefly to clear and burn off any mixed vapors

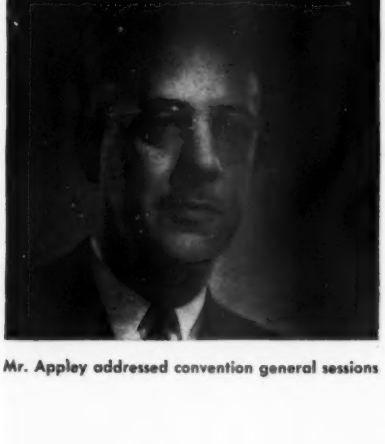
ISSUE OF NOVEMBER, 1948

More intelligent utilization of human energies will produce amazing results

Next step in industrial relations

BY LAWRENCE A. APPLEY

President, American Management Association, New York



Mr. Appley addressed convention general sessions

The next step in industrial relations will be the rapid and broad growth of understanding of human values. This means the intensification of use of means for acquiring specific and accurate knowledge of people and of increasing understanding between individuals and groups of individuals.

These media are the philosophies, principles and techniques of good personnel administration. The particular media of personnel administration which will be enjoying the greatest interest, attention and use is that of making personnel inventories.

A personnel inventory is a specific list of the performance, qualifications and capacities of the individuals within an organization. It is an accurate appraisal of human resources and requires great care and skill. It is a device through which the operations of a business may be managed effectively. It is a specific media through which greater understanding can be brought about.

James D. Wise, president, Bigelow Sanford Carpet Co., addressed the sixteenth annual industrial relations conference at Princeton University on the evening of September 16. The last statement which he made in that address was: "It is not putting it too strongly to say that good industrial and public relations are democracy's ticket to the last boat." He had pointed out that we do not need to spend great effort in the development and perfection of new methods and techniques of personnel administration. We already have enough to do the job required to save our private enterprise system, if more people would learn their use and apply them with diligence and sincerity.

The means are at our command. The methods and the techniques have been discovered and tested successfully. All that is needed is to increase tangibly and rapidly the size of that group of progressive managements that is doing a constructive job of human values, the human understanding between individuals and groups of individuals, and thereby the individual productiveness of their organizations.

We are actually entering that era when the tools of good personnel administration become the tools which the line executive uses to get the operating job done. Physical resources and human resources will no longer be subjects of independent and separate considerations. One can no longer be separated from the other. Effective handling of physical resources will be dependent upon management skill in dealing with human resources.

Analysis of operating problems will be approached through the analysis of human problems. The solutions to lowering profits, sinking sales, increasing costs, unbalanced inventories, weakening sales promotion and slipping markets, will be found in the solutions to poor selection of people, inadequate training, stupid supervision, bad salary and wage administration, poor working conditions, haphazard methods of promotion, ineffective incentives, etc. There is no operating problem that cannot be uncovered and there are none that can be solved as quickly or completely as through the careful use of personnel inventories.

"Inventory" is a word common to all. It is so common and so well understood that I doubt many have bothered to observe its definition in the dictionary. An inventory is "a summary, listing of stock, materials, equipment and *personal qualifications*." Few of us have realized that a summary or listing of human values is as much a part of a complete inventory of a business as is the summarization of stock, materials and equipment.

Personal inventory

When a management, from the top to first line supervision, puts in the same amount of time, effort and skill into the inventory of personal qualifications as it does into the proper evaluation of its physical resources, the result is nothing short of astounding.

This is what you have when a satisfactory and complete system of personnel inventory is operated in your organization:

1. An accurate written appraisal of the results, methods, personal qualifications, background and potential of each individual in the organization. It will be a fair and accurate reflection of the judgment of at least three people, arrived at in joint discussion, and supported by factual data. This will in turn be confirmed by a responsible reviewing group of at least three people.

2. A specific plan of action for each

individual which will indicate, first, whether or not he or she is to remain in the present position of responsibility, or second, whether he should be removed from the job. If he is to stay in his present job, a program will be indicated which is to be followed for improving his individual productiveness on the job and for preparing him for positions of greater responsibility. It may indicate that he is on probation for a certain definite period of time.

If it indicates that he is to be removed from the job, then it will be known as to whether he is to be promoted, demoted, transferred to a job of equal status, or terminated. If he is to be terminated, the answer will be indicated as to whether he is being dismissed for cause, given a termination allowance, or placed on pension. It will identify the definite date for the action to be completed.

3. Informed employees who have been advised of the results of the appraisals and of the plans arising therefrom.

4. A summary chart which graphically presents the results of the appraisals of a given group. This gives an over-all picture of the human resources in a particular organization unit.

5. Lists of individuals whose appraisals indicate they are in line for key positions. Each position will indicate those immediately available for promotion to it, those promotable within a reasonably limited time, and those who have ultimate potentialities for development to that level.

6. A knowledge of operating problems in every phase of the business, and plans for their solution.

7. An understanding and morale throughout the organization, resulting from an objective of mutual helpfulness, that cannot be acquired in any other way.

8. A more complete knowledge by the supervisory and executive organization of the operations of a business, in less time and with greater accuracy than it can be attained in any other way.

9. Greater individual productiveness and noticeably increased returns to the management, to the employees, to the consumers, and to the investors.

America is what it is today because we have made more effective use of human energy than any other people in the world, at any time or in any place. We will maintain our position only by increasing our utilization of human energy.

Industrial relations round-table

Prepared by A. G. A Personnel Committee

● **The Wage and Hour Division rules** based upon the Supreme Court's decision involving "overtime-on-overtime" became effective October 18. This was announced by the Wage-Hour Administrator as a result of the Supreme Court's refusal to reconsider its previous decision in the Longshoremen Case. It is now clear that premiums paid for work during certain hours or days as such, without regard to the number of hours previously worked, must be included in computing base rate for determining payments to be made for actual overtime work. Also, where employees work on two or more rates during the week, the average straight-time pay must be determined by computation to determine overtime payments. Even though the order was held in abeyance pending the Supreme Court's latest action, employers are not relieved of liability in suits brought by individual employees for payments which deviate from the principles established by the Supreme Court's decision.

● **"Communism Within the Labor Movement, the Facts and Counter Measures"** is the title of a bulletin published in 1947 by the U. S. Chamber of Commerce. It is a most thorough-going study of a subject which is currently very serious. For this reason, we are noting it in this column. Since national security is involved it is important that more people have the "know-how" to deal with this problem. Copies of the booklet may be obtained from the Economic Research Department, Chamber of Commerce of the United States, Washington 6, D. C.

● **"How Missouri's New Utility Anti-strike Law Works"** is the subject of an article in the August 12 issue of *Public Utilities Fortnightly*, written by Vance Julian, chairman of the Missouri State Board of Mediation. The article tells how the law has operated since it became effective a year ago.

● **"Telling Employees About Business Operations: The Company"** is the title of the latest report in the Metropolitan Life Insurance Company series on keeping employees informed. Surveys have repeatedly revealed that news about their company ranks high in the list of things employees like to read. This is a companion report to one mentioned in the September Round-Table concerned with profits. Executives who would like to have either of these reports may obtain copies by writing to the Metropolitan Life Insurance Co., Policyholders' Service Bureau, 1 Madison Avenue, New York 10, N. Y.

● **Elmo Roper** reported on public opinion on the Taft-Hartley Act in the *New York Herald Tribune* under date of September 30, 1948. A recent survey on this subject conducted by *Fortune* Magazine shows the following results:

	Total Voters (%)
Repeal it entirely	12.1
Make it more favorable to unions	11.0
Leave it as it is	24.4
Put a stronger check on unions	30.0
Express no opinion	22.1

Mr. Roper remarks that it is clear that by a margin of two to one the voters favor the present provisions of the Taft-Hartley law or want even stronger measures to curtail organized labor.

● **Wage rates in gas utilities** have been summarized in a report by the Bureau of Labor Statistics, U. S. Department of Labor, based on studies made in March and April 1948. The study covers 126 establishments employing 57,860 workers in the gas utility industry and is limited to cities of 75,000 or more population. Data are summarized for the several geographic areas of the country. A detailed bulletin covering the study will be published shortly and copies will be available upon request.

● **Pension and retirement plans** are within the scope of collective bargaining, according to the N.L.R.B. ruling which has been upheld by the Circuit Court of Appeals in Chicago. The case will be carried to the Supreme Court for final determination and appears likely to be affirmed.

● **Don't forget** the National Personnel Conference of the Gas Industry at the Palmer House, Chicago, November 18 and 19. An excellent program embracing problems of vital interest has been prepared, and will be presented by outstanding employee and industrial relations men of the gas industry. Conference is being sponsored by the Personnel Committee, Great Lakes Personnel Conference, Midwest Personnel Conference, and Southwest Personnel Conference of the American Gas Association.

E. Carl Sorby showing how production depends upon increased cooperation in industry and business

Flames of freedom

A period of closer cooperation between the Liquefied Petroleum Gas Association, the American Gas Association and the Gas Appliance Manufacturers Association was predicted by Howard D. White, executive vice-president, L.P.G.A., during a special "Flames of Freedom" program sponsored by the LP-Gas Association and G.A.M.A. on Friday morning, October 8, immediately following the A. G. A. convention. "We are just in our infancy as far as association progress is concerned," Mr. White stated. "We are on the verge of a new and prosperous era."

Several thousand LP-gas dealers, joining the gas industry convention for the first time, heard a fast-moving presentation outlining the sales potentials of water heating, refrigeration, domestic and commercial cooking, and space heating in the liquefied petroleum gas field.

The dealers and other guests were welcomed by Kenneth Koach, president, LP-Gas Association, and H. Carl Wolf and H. Leigh Whitelaw, managing directors of A. G. A. and G.A.M.A., respectively. Mr. Wolf pointed to what he called the snowballing effect of all three organizations which is projecting the tiny gas flame into the nation's homes and building a true flame of freedom. Great interest was shown in the announcement of James I. Gorton, director of "CP" promotion for G.A.M.A., that LP-gas ranges built to "CP" standards are now available.

George S. Jones, vice-president in charge of sales, Servel, Inc., Evansville, Ind., told the delegates that the LP-gas industry has experienced a heavier demand and more rapid growth than any other peacetime industry with which he is acquainted. It is very desirable, he added, that this youngest industry should join in efficient cooperation with the older gas industry.

Mr. Jones estimated that there will be 5,400,000 LP-gas users by the end of 1948. At present he said 73 percent of LP-gas users cook with gas, 18 percent have gas water heating, and only five percent use gas refrigerators. This shows that many persons with LP-gas in their homes are still prospects for new gas appliances, particularly refrigerators.

Discussing plans for LP-gas refrigeration, he declared that his company is trying to follow the trend in refrigerators of decreased price differentials. "I can predict," he added, "at least as many LP refrigerators in 1949 as in 1948."

He showed that the long-awaited buyer's market, riding in on a wave of increased personal income, has already arrived in some areas of the country. Nor is there any reason for dreading a buyer's market—"it is nothing but a perfectly normal situation."

The distributors and dealers learned from Daniel J. Brogan, sales manager, The G. S. Blodgett Co., Inc., Burlington, Vt., that eating out is the country's second largest occupation with more than 40 billion meals having been served last year to persons outside their homes.

Discussing immediate opportunities for expanding the LP-gas commercial cooking market, Mr. Brogan told the clinic that of a total of about 550,000 institutional feeding operations not less than 220,000 are in LP-gas areas.

"Only by neglect and default can the

Howard D. White (right) and Kenneth Coach, executive vice-president and president, LP-Gas Association

industry miss the full share of the commercial cooking load," he remarked. He reminded management that as liquefied petroleum gas is selling mass food production *service*, LP-gas becomes a partner in each mass-food production unit.

James F. Donnelly, marketing director, water heater division, A. O. Smith Corp., Kankakee, Ill., and a member of the A. G. A. Water Heating Committee, announced a full-scale promotional campaign on gas water heating which will open early next year. This drive will be backed by A. G. A. and the A. G. A. Water Heating Committee and will make a strenuous effort to keep America "gas hot water conscious."

Hot water was described as the universal solvent of household problems of sanitation and cleanliness by C. Edwin Bartlett, Bartlett & Co., Rockford, Ill. He urged the industry in its sales efforts to concentrate on selling automatic gas water heaters on a replacement basis.

"Let's get into hot water first," he appealed. "Let's emphasize adequate and

Frank J. Nugent, president, Gas-Appliance Manufacturers Association, presiding at LP-Gas meeting

dependable hot water service and discourage competition."

One of the nation's top political economists, Dr. Herman Finer, University of Chicago, commended the LP-gas and gas utility industries for their long-range view.

"Have we got prosperity in this country? I think we have," he told the audience. "The real test of prosperity is the high level of production."

Continued public works and large outlays for military and economic preparedness are no cause for long-run anxiety he declared. The principal need is for the production of things that the people want. The main cause of worry today is the short-run view and the main cause of depression is a suddenness of fear.

For prosperity to continue we need, he added, "the simultaneous confidence and good sense of literally millions of business units. The possibility that this may not happen is the essential difficulty in our economy."

Dr. Finer then listed points which are needed to bring about a great sustained era of prosperity. These included careful credit contraction, a wage moratorium until the end of 1949, no reduction of profits through increased taxation, the best-trimmed national budget possible, increased social security coverage, a nationwide savings campaign, increased labor productivity, no sizable tax reductions, and the formation of a council of industry, banking, farming, commerce and labor to plan a policy to end the present lack of coordination.

Appliance dealers were urged by E. Carl Sorby, vice-president, George D. Roper Corp., Rockford, Ill., to join the profit parade by putting the "CP" gas range out in front. Mr. Sorby served as chairman of the program committee for the "Flames of Freedom" meeting.

Speaking on the subject "Cooperation versus Competition," Mr. Sorby stated that the gas industry's Gas Has Got It campaign is an outstanding example of cooperation. He described this campaign as a joint effort on the part of hundreds of thousands of people in the gas industry to promote the same idea, to instill the same confidence one in another and in the general public, and to cooperate in national and local advertising efforts.

"The competitive spirit rapidly is passing by the board," he declared, "and the tendency toward increased cooperation in business and industry, and just recently in America, is developing rapidly. We have many examples before us for the need of unity of effort and purpose.

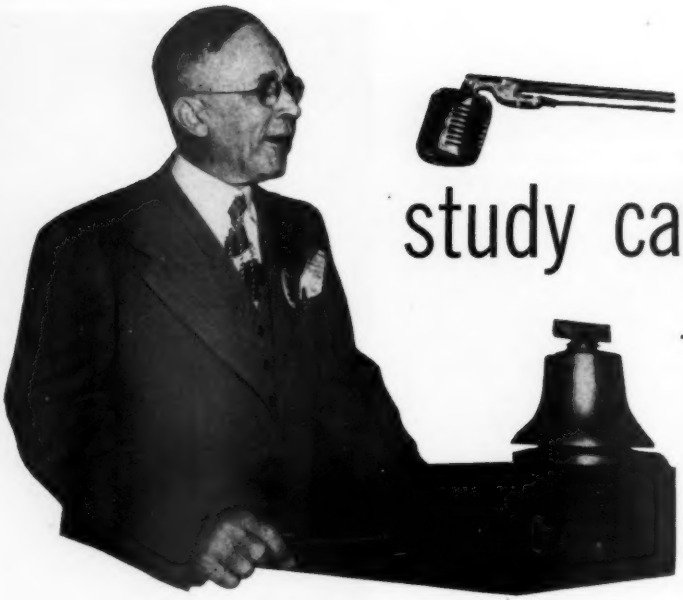
Delegates arrived in large numbers to hear Mr. Sorby's talk, and were rewarded by a display of unusual showmanship. Dramatic stage effects and a parade of posters, listing points in his address,

Dr. Herman Finer (top), University of Chicago; D. J. Brogan, The G. S. Blodgett Co.; George S. Jones, Servel; C. Edwin Bartlett, Bartlett & Co.

made the presentation more effective.

The meeting was brought to a successful conclusion by Frank J. Nugent, sales promotion manager, Bryant Heater Co., Cleveland, Ohio, and newly-elected president of G.A.M.A., who presided as chairman of the proceedings.

Accountants study capital expansion



Chairman John A. Williams opening Accounting general session luncheon

A large and attentive audience, meeting in Atlantic City last month for the accounting sessions at the American Gas Association convention, heard a preview of the impressive capital expansion program which is contemplated for the nation's gas industry within the next few years.

E. W. Morehouse, vice-president, General Public Utilities Corp., New York, speaking on the accounting general sessions program as chairman of the A.G.A. Subcommittee on Economic Problems, told the delegates that in the next five years the gas industry expects to spend between three and three-and-one-half billion dollars for new capital, or about 55 percent of the approximately $5.9 billion of plant installed at the end of 1947.

"About 80 percent of these estimated expenditures will be for natural gas facilities," Mr. Morehouse said, "of which about 60 percent or $1.5 billion will be for transmission facilities. Nearly four-fifths of these expenditures are expected to be made by *straight* natural gas companies, rather than combination companies.

"Of the remaining 20 percent of new capital expenditures (around $600 million) five-sixths will be for *manufactured* gas facilities, mostly by *combination* companies rather than straight gas companies, the latter reporting only about $100 million of new capital required, of which $26 million is now expected to be raised internally.

"If the non-reporting companies and those which have yet developed no financial plans follow the pattern of those companies which have reported on somewhat developed financing programs," Mr. Morehouse continued, "the estimated three to three and one-half billion dollars of new capital requirements may be financed, depending of course on market conditions, by about $1 1/3 billion (40 percent) raised internally and about $2 billion raised externally."

The Accounting Section, which has been running at high speed all year, presented a well-rounded program on Tuesday and Wednesday of convention week. The success of these meetings was due in large part to the dynamic leadership of the chairman, John A. Williams, Niagara Hudson Power Corp., Syracuse, N. Y., and the support of the vice-chairman, L. E. Reynolds, The Connecticut Light & Power Co., Hartford.

Opening feature of the General and Property Records Accounting meeting, one of three separate meetings on Tuesday, was an activities report by A. A. Cullman, Columbia Engineering Corp., New York, coordinator for the General Activities Group. Mr. Cullman stated that various committees had dealt with 50 major subjects during the past year. He favored large committees and urged gas men to accept membership on the various committees and subcommittees.

The chairman of the General Accounting Group, J. C. Cross, Hope Natural Gas Co., Clarksburg, W. Va., stated that his committee had undertaken many projects during the year and that reports were made on them at the Spring Conference. J. F. Preish, Michigan Con-

Chairman-Elect L. E. Reynolds (left), The Connecticut Light & Power Co.; A. A. Cullman (center), coordinator, General Accounting Activities Group; Jerome Barnum, Bigelow Sanford Carpet Company

solidated Gas Co., Detroit, Mich., reported for the chairman of the Property Records Committee, H. J. Rustad, Equitable Gas Co., Pittsburgh, Pa.

Following this report, Mr. Preish presented a paper entitled "Coordination Within Departments" which stressed that good continuing property records can be obtained and maintained only if the department maintaining these records has the cooperation of all other departments and a sympathetic understanding of the problems involved. Consultation by the property records department with the project engineer, when a job is to be initiated, would permit division of the work into suitable job orders thereby providing for adequate and necessary detail costs.

The industry's first comprehensive study of underground storage of natural gas which has been prepared by A. V. Schwartz, Columbia Engineering Corp., Columbus, Ohio, was presented at the meeting by P. F. Leusch, The East Ohio Gas Co., Cleveland. The author noted that underground storage or field storage of natural gas, a relatively new development in the industry, presents diverse accounting problems to individual companies engaged in such operations.

He suggested that, similar to pricing storage input, no inflexible rule be established in the industry for pricing withdrawals. "The selection of the method of costing withdrawals, that is first in—first out, average cost, or last in—first out," he said, "should be left to the individual companies."

He also proposed that any revision in the Uniform System of Accounts at this time be sufficiently broad to "permit individual companies to record the cost of 'cushion' gas in either inventory or plant account, depending on the facts and conditions within the companies."

The paper stated that conventional service life depreciation methods should be used in calculating depreciation on storage plant. Depletion accounting for the cost of leaseholds, gas rights and gas well construction and abandonment costs should be discontinued upon reclassification of the property from "production" to "storage."

Mr. Schwartz mentioned that regulating bodies had not established specific accounts for this important phase of the natural gas business, and that the accountants should consider this problem and be ready to suggest accounts which will provide adequate accounting information.

C. G. Moorehead, Hope Natural Gas Co., Clarksburg, W. Va., gave a comprehensive description of the method used by the Hope Natural Gas Company for the measurement and purchase of natural gas.

The last paper presented at this meeting "Contributions in Aid of Construction" was delivered by L. E. Reynolds, Connecticut Light and Power Co., Hartford, Conn. He stressed the lack of uniformity in the treatment of this item for rate, depreciation, and tax purposes, and said that in his opinion, it should be considered as an item of revenue. He implored the accountants to continue discussing this item with the hope that some day it might be treated uniformly and equitably. Mr. Reynolds climaxed his talk and brought the meeting to a novel close as he suggested that he be rewarded in a way in which everyone present seemed anxious to duplicate.

Speaker C. J. Allen (left), The Connecticut Light & Power Co.; E. R. Eberle (center), Public Service Electric & Gas Co., and Vice-Chairman-Elect John H. W. Roper, Washington Gas Light Co.

A large audience was on hand to hear A. W. Fyfe, Consolidated Edison Co. of New York, coordinator for the Customer Accounting Activities Group, summarized the year's work. The topics discussed at this meeting were timely and enthusiastically received.

Harold F. Quad, Public Service Electric and Gas Co., Newark, N. J., reported on the results of a questionnaire regarding practices in billing fuel adjustments. The experiences of various companies with this new billing problem should be helpful to many companies incorporating fuel adjustments in their rates and this report should prove to be most timely.

Standardization

O. B. Cook, Battle Creek Gas Co., Battle Creek, Mich., reported on 23 pet collection procedures. This subject can always arouse considerable interest and this year's report was no exception. Louis Stoecker, Public Service Electric and Gas Co., Newark, N. J., reported on the work of his committee regarding the standardization of company forms to customers. He stated that standardization of forms was not just a matter of size, design and phraseology, but whether or not a standard form can be adapted to the procedures and policies of individual companies.

L. J. Rauh, Consolidated Gas Electric Light and Power Co. of Baltimore, read a paper entitled "An Economic Evaluation of Residential Deposits" in which he stated that the value of deposit security can be determined if facts and figures are substituted for opinions. He proposed a formula for obtaining a reasonably accurate appraisal of residential deposits.

The final paper at this meeting was "Technique of Interviewing Customers —Training Methods and Manuals" which was read by W. S. Frick, The East Ohio Gas Co., Cleveland, Ohio. He said, "good customer relations are simply good human relations and are directly developed by proper attitude of human beings." He enumerated ten questions and stated that the answers to these questions would determine the kind of relationship that exists between the utility and the customer. He thought that our biggest mistake is to overestimate how much knowledge, skill and incentive our employees have. Because an employee has been with a company a number of

years, because he has had contact with the work, because he has met and talked with customers, and because he has received fair wages, it is too often assumed he is qualified and has the right attitude toward his job, the company, and our customer, Mr. Frick stated.

After the meeting closed, the speakers were swamped by eager groups of questioners seeking further information. In conjunction with two of the papers, various charts and exhibits were on display along one side of the room, showing among other things how various companies list the fuel adjustment clause on the bill form itself.

The Taxation Accounting Group met under the leadership of Frank Freer, Jr., Public Service Electric and Gas Co., Newark, N. J., and Herbert Howard, Niagara Hudson Power Corp., Syracuse, N. Y., the latter representing the E.E.I. now with LeBeouf and Lamb, New York, presented an instructive talk on "Tax Treatment of Deferred Credits and Reserves." An article based on Mr. Diamond's talk is scheduled to appear in a future issue of the MONTHLY.

The Materials and Supplies Accounting group met under the leadership of G. B. Herr, The Peoples Natural Gas Co., Pittsburgh, Pa., and discussed informally such subjects as codification of materials, floating purchase requisition, materials and supplies reports, layout of warehouses, and handling and storing materials. A portion of the meeting was devoted to discussing subjects for study by next year's committee.

Approximately 250 persons attended the Accounting general session luncheon on Wednesday with Chairman Williams presiding. H. Carl Wolf, A.G.A. managing director, brought greetings from there is not enough news in the publication which has a direct personal interest for the worker who receives it. He said that if you want high readership among employees, then let the employee read something about himself and his friends. Keep the words simple and the sentences short. Make it easy to read. Keep in mind what the majority of the readers want and not what management will enjoy reading. (Mr. Allen's paper is reprinted in the October 1948 MONTHLY.)

A. W. Fyfe, Consolidated Edison Co. of New York, introduced W. R. Clement, Public Service Electric and Gas Co., Newark, N. J., who outlined the scope of the new Accounting Developments Service. He stated that about 2,000 copies of the new service have been sent to accounting personnel of member companies. He urged members to report developments so that the exchange of ideas

Newly elected committee chairmen of the Customer Accounting Activities Group between sessions. (L. to r.) C. L. Havener, New York; B. M. Scherer, Indianapolis; A. G. Burnett, Albany

General Accounting Activities Group coordinator and chairmen-elect: (Seated, l. to r.) F. J. Labanca, New Orleans; A. T. Gardner, Wilmington, coordinator-elect; J. F. Farley, Ithaca. Standing: K. R. Watson, Philadelphia and L. R. Michelsen, Chicago

A paper reviewing recent tax decisions was read by William G. Betsch, Public Service Electric and Gas Co., Newark, N. J. A lively discussion followed, particularly on the deductibility for income tax purposes of amortization of acquisition adjustments. A recent court decision involving the stamp tax on short term notes issued by General Motors Acceptance Corp. was also discussed.

J. W. Balet, Consolidated Edison Co. of New York, presented a paper entitled "Application of the LIFO Inventory Method to Income Tax Depreciation." The difficulties of applying "LIFO" to depreciable property were discussed at some length. Leo Diamond, formerly with the Bureau of Internal Revenue and Hudson W. Reed, A.G.A. president, and congratulated the section for the fine work accomplished during the past year.

E. R. Eberle, Public Service Electric and Gas Co., Newark, N. J., introduced the first speaker Charles J. Allen, vice-president, The Connecticut Light and Power Co., Waterbury, Connecticut. "How to tell Our Story to the Employee" was the subject of Mr. Allen's talk and he figuratively tore apart various company reports and letters as he quoted the pompous words and phrases he found in them.

Mr. Allen's theme was that company house organs will not be read by employees if the language is stilted, if the subject matter is too technical and if through this new medium will be of mutual benefit to all member companies.

A. A. Cullman, Columbia Engineering Corp., New York, introduced Jerome Barnum, Bigelow Sanford Carpet Co., New York, who delivered an excellent talk on the subject of "Better Manpower Utilization Through Proper Systems Planning." He stressed the need for an adequate methods staff to study present and proposed procedures in order to determine that manpower is and will be used most efficiently. Such a staff should keep itself well informed by studying the latest methods and should take refresher courses in universities where *(Continued on page 53)*

Research, advertising and sales set meeting theme

B. T. Franck who will head section activities in 1949

Industrial and commercial sales rise

Vice-Chairman-Elect D. W. Reeves, Oklahoma Natural Gas Company

Now is the time to go after industrial gas sales, Frank H. Lerch, Jr., president, Consolidated Natural Gas Co., New York, told guests at the Industrial & Commercial Gas Section's luncheon during the recent American Gas Association convention in Atlantic City.

"Our potential for future development is excellent but we must be aware of the responsibilities which come with growth. The benefits which low-cost, highly efficient gas fuel offers to industrial consumers are simply unlimited." Moreover, he added, industrial gas sales "are becoming as basic as domestic sales and often more attractive."

"The advantages in industrial sales are positive," Mr. Lerch declared, "whether arising from election to sell such gas or not if you have such a choice, or arising from the necessity to sell for load factor control. Its advantages may be listed as follows:

"First—this class of sales helps greatly in maintaining a good load factor on your producing equipment, or in purchasing gas from pipelines or producers. This means a better average cost or price.

"Second—They help to stabilize and distribute earnings or revenues through the year.

"Third—They contribute to the domestic users' gas rate. That is perhaps an unfortunate feature of the regulation process, but we must recognize it regardless of our private opinion.

"Fourth—They contribute to the industrial development of the service territory, especially in attracting high price industrial demand."

Approximately 250 gas company officials, gas equipment manufacturers and banking representatives, heard Mr. Lerch's address which was the featured event of the popular luncheon meeting. Leon Ourusoff, Washington Gas Light Co., Washington, D. C., and chairman of the Section, presided at that meeting and also at a comprehensive Sectional meeting on the same afternoon.

Opening presentation of the afternoon meeting was the annual report of the chairman, Mr. Ourusoff. He noted that for the 12 months ending March 31 of this year, commercial revenues had risen 18.6 percent, while industrial revenues were up 15 percent over the corresponding period a year ago.

It is only natural then, he explained, that during the year just ended the Section has participated in more trade shows, held more committee meetings, issued more Information Letters, and published a greater amount of promotional and educational material than last year, all within the assigned budget.

Concluding his report, Mr. Ourusoff listed recommendations of the Section's Managing Committee that the scope of advertising, particularly in the industrial field, be enlarged, and that commercial equipment research should be stepped up vigorously.

The committee recommended that a common ground be found among appliance manufacturers, their dealers and gas utilities to develop consistent methods of servicing and installing commercial cooking equipment. It was also suggested that facilities be set up within the Association for promotional coverage of industrial gas on a national scale.

The remainder of the afternoon session was geared to the industry's PAR plan. The lead-off man, John J. Bourke, A. G. A. director of commercial gas cooking promotion, discussed two newest developments in the commercial cooking field—a small steam cooker for counter service and a pot washer. He described the new Vulcan Flavorizer which was demonstrated at the convention as a non-competitive piece of equipment with large promotional possibilities.

Mr. Bourke then introduced Connie Rollis, Standard Gas Equipment Corp., Baltimore, who spoke briefly on the new Flavorizer and started the demonstration

Luncheon head-table: (l. to r.) Raymond W. Fenton, Chicago; A.G.A. President-Elect R. W. Hendee, Colorado Springs; Frank H. Lerch, Jr., New York; Chairman Leon Ourusoff, Washington; A.G.A. President Hudson W. Reed, Philadelphia; D. A. Campbell, Cleveland; Everett J. Boothby, Washington

Raymond W. Fenton dramatizing a point during talk on promoting industrial and commercial gas

is continuing at an accelerated rate it is vitally important that industrial gas men keep abreast of technological improvements if they wish to be of service to their industrial customers.

"Let's have more research on gas combustion equipment so we can produce better results," Mr. Campbell appealed. "Gas utilities individually and collectively can set the pace by encouraging their customers to buy equipment on a performance basis and not on price." This can only be done, he added, by continuous research on combustion fundamentals, development of better equipment and improvement in utility service.

out how A. G. A. could be of material help to gas companies if they would only send in information and photographs to the staff. He cited as an example of the type of publicity that will do the most good, the prize photographs of industrial and commercial gas applications on display in the G.A.M.A. exhibit in the Convention Hall.

Following Mr. Fenton's talk, Karl Emmerling, The East Ohio Gas Co., Cleveland and chairman of the Nominating Committee, presented his report. The names of Bernard T. Franck, vice-president, Milwaukee Gas Light Co., Milwaukee, Wisc., and D. W. Reeves,

of cooking. The various food items were shown cooking in the new appliance during the balance of the program.

Mr. Bourke continued with a summary of the promotion items available to gas companies. He particularly emphasized the new publications "Commercial Kitchens," and "Where To Get It," and described in detail how gas companies could use these books to the fullest advantage. He also explained the importance of the Section's "saving gas" posters and direct mail pieces which have been prepared and made available to gas companies. His presentation concluded with a showing of the new commercial cooking film "Where Food Is Finest." This was the first official showing of this outstanding color, sound film to the gas industry and it was heartily received by an appreciative audience.

The research aspect of the PAR plan was expounded by Don Campbell, manager, industrial division, Bryant Heater Co., Cleveland. He traced the progress of industrial gas equipment over the past decade and pointed out that as progress

Section Chairman Leon Ourusoff (left), Washington Gas Light Co., and Speaker Frank H. Lerch, Jr., Consolidated Natural Gas Co., New York, who emphasized the value of the industrial gas load

One of the most important segments of PAR is advertising. Just how important it is, was demonstrated by Raymond W. Fenton, assistant advertising manager, The Peoples Gas Light and Coke Co., Chicago. By means of several charts —they were really cartoons—he brought home the whys and wherefores of advertising and publicity. Mr. Fenton pointed

general sales manager, Oklahoma Natural Gas Co., Tulsa, were presented for chairman and vice-chairman respectively, and both were elected unanimously.

Following brief remarks by the newly-elected officers, Chairman Ourusoff closed the meeting by inviting the guests to sample foods that had been cooking in the Flavorizer during the afternoon.

Delegates inspected and sampled food from gas-fired Flavorizer during novel cooking demonstration

Display of publicity photos in industrial lounge

Part of large crowd which attended Section luncheon and heard Frank H. Lerch, Jr., New York, speak on the value of the industrial gas load

The fuel outlook

(Continued from page 18)

to work with the Oil and Gas Division of the Department of the Interior. So far as I know, final action has not yet been taken on these programs. However, it seems to me that in making a decision on the allocation of steel, consideration should be given to the national security aspects of the gas industry and the great importance of accelerating pipeline construction.

My second observation has to do with the increasing dependency of this country on foreign sources of oil. The great importance of natural gas may not as yet have been adequately recognized by everyone having responsibilities in the total fuel picture. Certainly I think sufficient emphasis has not been given to the fact that natural gas can be substituted for liquid petroleum fuels and in this way release them for military and other vital uses.

Referring to the recent reports of the American Petroleum Institute and the American Gas Association dealing with reserves, it appears that our national proved reserves of gas are much greater than our national proved reserves of oil in relation to current annual use. Therefore, natural gas should be considered as an integral part of our total petroleum resources from the standpoint of national security. It follows that Governmental and industrial activities should be aimed at securing more comprehensive and faster exploration, production, transportation, and distribution of natural gas.

Governmental regulations affecting the gas industry should be revised so as to make them promotional rather than restrictive. The problems of the natural gas industry should be reviewed not narrowly in terms of ordinary commission regulation and commission economic standards, but more broadly in terms of the national petroleum shortage that would confront the country in time of war.

There is, in my judgment, a real need to clarify our national policies with respect to natural gas to bring them in line with requirements of national defense. The situation calls for an aggressive program to promote the movement of natural gas into the large consuming areas of the nation in order to release and conserve fuel oil.

From a mobilization standpoint we must safeguard and expand the basic essential civilian and war supporting industries—steel, copper, aluminum, transportation, coal, oil, gas and electric power. One of the best contributions that we can now make to the security of the nation is to foster the sound economic growth and technical development of these basic industries.

Unfortunately, there is today no cushion or margin of surplus capacity available in any of these industries to take care of a sudden, substantial increase in requirements. If, therefore, great quantities of metals or fuels should be needed in a defense or war effort, these could be provided only by sharp curtailment of existing civilian requirements. It seems plain that every effort should be made while there is time available to push the expansion and construction programs of these industries to completion on schedule or ahead of schedule if possible.

Eye-catching exhibit

This action presentation of new U.G.I. carburetted water gas apparatus, sponsored by United Engineers and Constructors, Inc., Philadelphia, was one of the spectacular equipment exhibits at the recent G.A.M.A. exposition in Atlantic City

Now is the time to sell

W. M. Jacobs (second from left), chairman-elect of the Residential Gas Section, with Wednesday speakers Edward A. McFaul (left), Evanston, Ill.; Dr. Pauline Beery Mack, The Ellen H. Richards Institute, State College, Pa., and Frank H. Trembly, Jr., The Philadelphia Gas Works Co.

Two hard-hitting, dramatized sessions devoted to promotion of domestic gas service and appliances were a feature of the annual convention in Atlantic City, N. J. The first session Wednesday, October 6, sponsored by the Residential Gas Section of the American Gas Association, was directed to the sales departments of gas utility companies. The second session on Thursday under the joint sponsorship of A.G.A. and the Gas Appliance Manufacturers Association, was keyed to the special interests of the gas appliance and equipment dealers.

W. M. Jacobs, manager of general sales, Southern California Gas Co., Los Angeles, who was elected chairman of the Residential Gas Section for 1948-1949, presided at both meetings. H. P. Morehouse, assistant sales manager, gas, Public Service Electric and Gas Co., Newark, N. J., was named vice-chairman of the Section at the first meeting.

The theme of both meetings was "Now is the time to sell."

Opening the Wednesday session, Mr. Jacobs made a strong appeal for the adoption of aggressive selling techniques and the immediate strengthening of the gas industry's sales forces. He warned that too many companies had abandoned long-range selling for short-term profit. The seller's market is gone, he declared, and we are now in a period of stiffening sales resistance that can only be overcome by the strongest, most concerted effort.

While gas range, water heater, and other gas appliance sales have shown sharp increases in recent years, Mr. Jacobs said electric range and certain other competitive appliances have made some gains by scoring larger proportional sales. The trend of these ratios must be reversed, he stated.

The A.G.A. Residential Gas Section is providing scores of sales tools, the chairman pointed out, but they must be widely used to be effective. Objectives of the planning and action committees of the Section are, first, to plan sales strategy one year ahead and, secondly, to improve still further the fine degree of coordination between the sales programs and the A.G.A. national advertising campaign.

Dr. Pauline Beery Mack, director, Ellen H. Richards Institute, Pennsylvania State College, speaking on "What About Hot Water?" presented valuable data obtained in an intensive study of washing conditions at different temperatures. From the 22,500 washes done in controlled operations with water varying from 80 to 180 degrees, Dr. Mack concluded that 160 degree water is best for most power and home laundry work. The optimum time needed to cleanse properly was 15 to 20 minutes.

A soap concentration up to three-tenths of one percent gave best results, Dr. Mack continued, but unlimited use of soap was not effective. Referring to bacteriological safeguards, she said it took 180 degree water to be completely effective while 160 degree water or lower temperatures needed chlorine or other antiseptics. Complete results of the institute's study will be published shortly, Dr. Mack said.

Using ten-foot flashing tubes to demonstrate the effectiveness of single-point ignition on both manufactured and natural gas, Frank H. Trembly, Jr., assistant sales manager, The Philadelphia Gas Works Co., made a bid for aggressive in-

Attractive tie-ins with the October "awl" advertising were shown at the Thursday dealers' meeting

dustry promotion of this development.

Mr. Trembly traced the experimental stages of single-point ignition back to the early 1930's, told of the vast laboratory and other research work concentrated on the problem, and continued:

"The results today are beyond the fondest hopes of five years ago. Consistent flashing from the top burner pilot to the oven or broiler burner is now obtained over any practical range of gas pressures and oven temperatures on both manufactured and natural gas, using identical flash tubes. This is indeed an accomplishment worthy of the interest and attention of our industry."

As to the present status of single-point ignition, Mr. Trembly pointed out that a number of range manufacturers have conducted their own research programs. "Six manufacturers have a total of about 300 field installations of single-point ignition ranges in Philadelphia, with some additional trial installations in other cities. In the exhibition hall at this convention, six range manufacturers are displaying experimental single-point ignition ranges in their booths.

"Certain of these manufacturers," Mr. Trembly continued, "are ready to produce single-point ignition ranges as soon as they can be tested and approved by the Laboratory under the newly-developed A.G.A. Approval Requirements, and as soon as satisfactory types of safety pilot valves are available. With greater acceptance by the gas utilities, many other range manufacturers undoubtedly will adopt this type of ignition."

"Owl Song" in connection with speech by J. J. Quinn, chairman, National Advertising Committee

At this point in the program Servel, Inc. staged one of the most elaborate and original presentations yet seen by the gas industry. Under the title "Serve and Sell with Servel," developments in gas refrigeration, water heating and air conditioning, were coupled with advertising, sales promotion, and home service features of a comprehensive 1949 program designed to aid the entire gas industry.

Mr. Leading Man for 1949 will be Mr. Retail Salesman, R. J. Canniff, Servel sales promotion manager, declared in opening the presentation. A recent national survey showed that one out of eight families in the United States preferred gas refrigeration to any other type, Mr. Canniff said. To capitalize on this popularity, Servel is planning the largest advertising schedule in its history for the coming year.

Following Mr. Canniff, P. R. Kennedy, P. A. Brown and J. Hewson in "March of Time" fashion, aided by skits, displays, off-stage voices, and other dramatized showmanship, described other points in the over-all promotional program. Among the points emphasized were the market for gas air conditioning, the necessity for more sales manpower and adequate training, and the need for more dealer support.

"The Flame of Freedom"—a full scale, 12-month achievement program for gas refrigeration salesmen, sponsored by the A.G.A. and G.A.M.A. refrigeration committees, was announced. Climax of a program that includes quarterly cash awards for salesmen, special trophies to gas companies, and other incentives, will be a Victory Vacation Flight for salesmen, gas company representatives, distributors and dealers, from Evansville, Ill., to Mexico City, returning to Chicago in time for the 1949 A.G.A. convention.

The Wednesday residential gas session concluded with an inspiring address by

Points used during J. J. Quinn talk on Thursday to show how "Gas Has Got It—For the Dealer"

R. J. Canniff (top) Servel; Harry Boyd Brown, Good House Stores; I. S. Anoff, Albert Pick Co.; J. J. Quinn, chairman, National Advertising Committee

Edward A. McFaul, Evanston, Ill., entitled "So You Think You're Slipping?" Using a breezy and humorous style, he documented the frailties and strength of the average man and woman. Most people, he said, face doubt, indecision, feelings of inferiority, resentment and other weaknesses that are only overcome as they make progress toward their ultimate goals.

Hundreds of dealers from all parts of the country augmented the attendance at the Thursday session which riveted attention on the tremendous market opportunities in the gas appliance business and the gas industry's nationwide promotional program to support the dealer and his allies.

Opening the session, Mr. Jacobs outlined briefly the vast undeveloped market which could be turned to profit by aggressive merchandising. He cited the new home field, the nearly 20 million domestic gas customers, many of whom need replacements or additional appliances, and the servicing requirements.

Harry Boyd Brown, president, Good House Stores, Inc., Philadelphia, brought out many fine points in the art of selling in a vigorous address entitled "The Sale Is the Thing." He advocated high pressure selling as against low pressure selling or what he termed "lazy, indifferent, unenthusiastic, 'take-it-or-leave-it' type of selling."

No merchandising is really sold until the retailer sells it, Mr. Brown said, pointing out that the world's greatest salesman is the retailer. "The whole manufacturing, distributing, merchandising structure is built on his selling efforts, on what he does and says when a customer enters the store."

Gas appliances lend themselves to tremendously appealing advertising, he continued, and the industry's advertising should be doubled, tripled and even quadrupled. "Not alone has gas got it, but gas leads in the features that appeal to the housewife."

Progress in dealer cooperation was reviewed by I. S. Anoff, president, Albert Pick Co., Inc., Chicago, a pioneer in the promotion of a progressive dealer program. He presented brief reports from 25 cities to show the advances made in utility dealer relations throughout the country.

"Dealer cooperation reduces operating costs and increases profits for all," Mr. Anoff declared. "The cooperating utility needs fewer salesmen yet it gets the benefit of a vastly larger sales organization. The dealer benefits for he reduces competition." He warned dealers that the success of this program calls for more than wishful thinking. "It requires conscientious follow-through and sound merchandising."

With the aid of slides, attractive models, and a singing trio, J. J. Quinn, vice-president, Boston Consolidated Gas Co., and chairman, A. G. A. National Advertising Committee, proved conclusively to his audience that "Gas Has Got It—For the Dealer."

Speaking of the over-all market potential for gas appliances, Mr. Quinn said: "Some may think that the market has already reached a high point of saturation. This is not so. The market for gas appliances, with the resultant profit opportunity for the dealer, is tremendous. Consider gas ranges, for example. A total of 25 million modern gas ranges will be needed during the next five years, or five million each year to replace older ranges now in use, and to supply the great new home market."

Sales of automatic gas water heaters, Mr. Quinn said, rose to a peak of one million, eight hundred thousand in 1947, and 1948 is going to be another big profit-making year. He added that there is an immediate waiting market for two million gas refrigerator prospects and other gas appliances are in popular demand.

To expand and cash-in on this popularity, the gas industry is carrying on the greatest coordinated advertising program in its history, Mr. Quinn noted. The current Gas Has Got It drive represents a total expenditure of $8 million by the Association, utilities, dealers and manufacturers. This campaign on automatic gas ranges will be continued during 1949, Mr. Quinn said. Other promotion is in progress for gas ranges of all types, water heaters and other appliances, he pointed out.

In conclusion, Mr. Quinn said Gas Has Got It for the dealer because it has: huge market, volume sales, good profits, fast turn-over, strong advertising and merchandising support, and customer satisfaction.

E. Carl Sorby, vice-president, Geo. D. Roper Corp., *(Continued on page 55)*

H. P. Morehouse, Section vice-chairman-elect; H. S. Christman, The Philadelphia Gas Works Co.

Home Service activities at convention were climaxed by heavily-attended breakfast, one feature of which was a capsule presentation of home service records

Home service shows 'how to do it'

Services that reach the homemaker in thousands of communities throughout the country were the center of attention at the Home Service Round-table and the Home Service Breakfast which drew record crowds on Tuesday afternoon and Wednesday morning during the A.G.A. Convention in Atlantic City. As expressed by one reporter, "Beauty, Brains and Business Acumen" combined to make this phase of the program a complete success.

Elizabeth J. Lynahan, home service director, The Peoples Gas Light and Coke Co., Chicago, and chairman, A.G.A. Home Service Committee, presided over the round-table on Tuesday afternoon and introduced a swiftly moving program featured by "how to do it" discussions of six subjects ranging from television to detergents. Home service directors and visitors, always alert to new developments, listened first to a description of the first known home service television experience.

Jane Schleicher, The East Ohio Gas Co., Cleveland, speaking on this topic, pointed up home service demonstration experience as effective in putting over a television program. She cautioned, however, that a number of problems need clarification before home service can fully utilize this type of program.

Television offers a wonderful opportunity for the "how to do it" type of program, particularly skits, according to Lester Vail, director of daytime shows and television, Show Productions, Inc., New York. The television bandwagon is rolling, he said, and home service is on the ground floor.

"Teacher dinners" have become an important activity in many home service departments, stated Helen Kirtland, who described the organization and program carried out in the departments of The Ohio Fuel Gas Company which she supervises. Informal and social, these occasions allow the home economics teachers, gas company officials, and home service people to better understand the ways in which gas company services can be made useful in classroom teaching. Miss Kirtland outlined her presentation program and also described similar plans in other companies.

The Home Service Round-Table was fortunate in being able to present one of the best-known home economists in the United States as its next speaker—Dr. Helen Judy Bond, head of the home economics department, Teachers College, Columbia University, and recently president of the American Home Economics Association.

Dr. Bond, in discussing the modernization of school laboratories, listed several basic assumptions: a thorough study of present educational needs with future needs anticipated; a foods laboratory to give maximum experience in equipment

Ethel J. Alpenfels, New York University, in talk on tribal customs, said greatest contribution U. S. will make to civilization will be in social field

Visiting home service directors: (seated left to right) Thelma Holmes, Alabama Gas Co.; Beatrice Cole Wagner, The Philadelphia Gas Works Co.; Eleanor Morrison, Michigan Consolidated Gas Co.; (standing) Mrs. Mary Belle Burnett (left), The Cincinnati Gas & Electric Co.; Betty Jane Frahm, Montana-Dakota Utilities Co.; and Ruth Sheldon, Washington Gas Light Co., Washington, D. C.

and management; the space should be made to serve as many purposes as possible in teaching operation; principles of scientific management should be applied; surface heights should be as nearly correct as possible, and the equipment used by all students should represent price ranges and special features; the lighting, floor covering, ventilation and utility services provided for efficient operation. Dr. Bond emphasized particularly that laboratories should be modernized in order to be more easily kept clean and in good condition.

"Detergents—Their Use in Laundering" was the subject of an enlightening paper by Mrs. Helen Kendall, equipment editor, Good Housekeeping Institute. There is a rapidly growing interest in the laundry and its equipment, not only by homemakers but by the gas companies and its appliance dealers. The home use of the new soapless detergents has brought up a need to know more about them. Mrs. Kendall described the characteristics of a number of such products which made some more effective in the automatic washers, others better used in the mechanical dishwashers.

"A New Service for Women's Clubs" was the subject of an interesting talk by Dorothy O'Meara, The Bridgeport (Connecticut) Gas Light Company. Help in providing a speakers' list—and a one-day meeting for club presidents and program chairmen to hear of ways to better serve club members through publicity, organization, and plans for raising money, has proved a valuable and popular service rendered by the gas company in Bridgeport.

In concluding the afternoon program, the visitors present from the women's magazines—27 from 19 magazines and newspapers—were individually introduced and given a special welcome by the large number of home service people present.

The increasingly popular Home Service Breakfast drew an attendance of 450 people for this early morning affair. Home economics careers and human relations were the dual theme of this stimulating session.

A.G.A. officials and other notables were in attendance when Miss Lynahan opened the breakfast program with a capsule presentation of the Career Records—"Home Economics for Me." These records were designed to be played before school classes to attract students to home economics careers. After describing their purpose, Miss Lynahan stated that sets of eight records describing a number of careers are being sold to gas companies for loan to local schools.

Other work of the Home Service Committee described briefly by Miss Lynahan included the preparation of the new booklet "Picture Supplement to Modern Kitchens for Homemaking Instruction," completion of a two-year project with a booklet on demonstration, "Home Service Serves the Community," and sponsorship of the annual A.G.A. Home Service Workshop, which will be held January 24-27, 1949, in Cleveland.

A dynamic talk "From Adam to Atom," a study in human relations, was then presented by Dr. Ethel J. Alpenfels, professor of anthropology, New York University. Dr. Alpenfels traced the development of American democracy, using illustrations from her years of teaching, study and life with many peoples of the world.

She asked for greater understanding of racial problems *(Continued on page 52)*:

Mrs. Helen Kendall (left), Good Housekeeping Institute; Dr. Helen Judy Bond, Columbia University; Dorothy F. O'Meara, home service director, The Bridgeport Gas Light Co.; Helen Kirtland, home service director, The Ohio Fuel Gas Co.; Jane Schleicher, home service director, The East Ohio Gas Co.

Convention sessions tell latest industry achievements

Technical highlights

John B. Klumpp (left), first chairman of Technical Section, presents service award to Chairman A. C. Cherry as Chairman-Elect W. R. Fraser looks on

Important progress in major chemical, production, distribution, corrosion, motor vehicle and purging fields during the past year was reported at the Atlantic City convention during three afternoon sessions sponsored by the Technical Section.

More than 400 delegates from all sections of the country attended the meetings and elected W. R. Fraser, Michigan Consolidated Gas Co., Detroit, as chairman of the Section for the coming year. Ernest G. Campbell, The Peoples Gas Light & Coke Co., Chicago, Ill., was elected vice-chairman.

Primary responsibility for continued progress of the gas industry was placed squarely on the shoulders of technical men by C. C. Russell, Koppers Co., Inc., Kearny, N. J. Speaking as chairman of the Association's *Gas Production Committee*, Mr. Russell stated that the gas engineer is today faced with greater problems than ever before. The correct answer to these problems, he said, is the research program conducted by the Manufactured Gas Department.

Special tribute was paid to leaders who have paced the Section's activities in former years. A. C. Cherry, The Cincinnati Gas & Electric Co., Cincinnati, Ohio, as chairman of the Section, announced in a surprise event on Wednesday afternoon the awarding of framed certificates of recognition to all past-chairmen. J. B. Klumpp, consulting engineer, Philadelphia, who served as first chairman of the Technical Section in 1918 and later became president of the Association, received the first award and then presented the remaining certificates.

"Today I think we're doing the best job of any association in the world," Mr. Klumpp told the delegates.

Mr. Russell's opening address on Tuesday afternoon was followed by an interesting program of chemical and production subjects.

In April 1944 Congress authorized appropriation of $30 million and a five-year study of synthetic liquid fuels production to be performed under the U. S. Bureau of Mines. Some of the advances made in the establishment of demonstration plants for deriving liquid fuels from materials other than petroleum were outlined by L. L. Hirst and his associates in the Bureau.

The Bureau's present work on synthetic fuels is directed toward oil shale and coal as a source. It is hoped that much of the laboratory and pilot plant data will prove valuable in an intermediate size unit before construction of a commercial size is undertaken.

Another function of the demonstration plant scale operations, Mr. Hirst declared, is to develop and prove specialized commercial process equipment.

An informative paper by C. E. Utermohle, Consolidated Gas Electric Light & Power Co. of Baltimore, on the High B.t.u. Oil Gas Process is reprinted in this issue of the MONTHLY. The paper covered an outstanding attainment of the Gas Production Research Committee and was introduced by P. T. Dashiell, consultant, United Engineers & Constructors, Inc., Philadelphia, the first chairman of the committee.

"The data given will be most useful," Mr. Dashiell stated, "to both those who desire to make high B.t.u. oil gas for reserve in situations distributing natural gas, and to those who wish to distribute high B.t.u. oil gas."

Applications of the Dayton-Faber Process for the manufacture of oil gas and reformed gas with the use of oxygen-enriched air were outlined by W. F. Faber, consulting gas engineer, Hillside, N. J. A total of 17 gas production tests have been made with the 5,000 cubic

Service awards were presented to the past-chairmen shown above and mailed to those not present and to the widows or relatives of deceased past-chairmen. (Front row, l. to r.) D. P. Hartson, B. V. Pfeiffer, Ross C. Cornish, John B. Klumpp, W. C. Beckjord, F. C. Weber, R. G. Griswold; (second row) A. C. Cherry, F. A. Lydecker, I. K. Peck, Oliver S. Hagerman, Charles A. Harrison; (third row) Martin I. Mix, John V. G. Postles, L. E. Knowlton, H. L. Gaidry, and C. S. Goldsmith

Brooke Daly (top left), McCabe-Powers Auto Body Co.; Francis Rudman, Michigan Consolidated Gas Co.; M. C. Alves, St. Louis, chairman, A.G.A. Motor Vehicle Committee; G. R. King, Philadelphia, chairman, A.G.A. Purging Committee; G. E. Hitz, Central Hudson Gas & Electric Corp.; (below, left to right) Dr. John F. Foster, Battelle Memorial Institute; Fred J. Pfluke, Rochester Gas & Electric Corp.; A. C. Sedlachek, Philadelphia Coke Co., and J. L. Eigenbrot, General Coke Co., Philadelphia

feet per hour oxygen oil gas generator using different fuels, Mr. Faber declared.

"The results obtained . . . are interesting to the gas industry from the standpoint of heating values per cubic foot; chemical analyses and impurities present in the gas. The conversion frequencies are high and the process is worthy of consideration for the production of city gas.

"In addition, the process and apparatus have the following advantages: low investment cost, minimum of labor, continuous production, flexibility of operation for the production of oil gas or reformed gas of any desired heating value with the use of oxygen-enriched-air."

Speaking as chairman of the Chemical Committee, J. G. Sweeney, The Brooklyn Union Gas Co., urged chemists to keep up and expand their services to the gas industry. He also suggested that delegates pay particular attention to the report of subcommittee Wilber J. Huff, U. S. Bureau of Mines, on chemical aspects of safety and accident prevention.

"Prominent gas chemists are acting as a supervisory committee for the Research Project on Mixed Gas Research and individual company chemists have either started already or are making plans for testing various mixtures of manufactured gas with natural gas so as to be able to utilize the latter gas to best advantage when the projected pipelines are finished," Mr. Sweeney reported.

The importance of proper engineering principles was brought out by E. O. Mattocks, Phillips Petroleum Co., Bartlesville, Okla., in an address on Safety Requirements for LP-Gas Installations.

He defined the term "safety" as "the development, incorporation, and maintenance of engineering principles in the transportation, storage, handling and utilization of liquefied petroleum gas so as to offer maximum economic protection to property with a minimum hazard to human lives."

Mr. Mattocks advised that both water protection and first aid fire extinguishers should be provided for LP-gas installations.

Some interesting field experiences with gamma ray inspection of welds in high pressure pipelines were discussed and illustrated with slides by A. B. Lauderbaugh, The Manufacturers Light and Heat Co., Pittsburgh.

Mr. Lauderbaugh and his co-author, Stanley A. Brosky, Pittsburgh Testing Laboratory, Pittsburgh, Pa., expressed the opinion that in the not too distant future field inspection of pipeline welds by either Gamma Ray or X-Ray will become an accepted part of high pressure pipeline construction.

Experience gained in the random inspection of welds along a 14-inch pipeline of The Manufacturers Light and Heat Company shows, they stated, that under ordinary conditions the cost for each weld inspected will be about $5. Gamma Ray inspection should not be considered in place of visual inspection of firing line welding operations, the paper declared, but it can be made a useful adjunct to the visual inspection and control of welding operations. Moreover, its value as a control increases as the working pressure of the line approaches the maximum allowable under code construction.

Recent advances in the understanding of the behavior of coal ash at high temperatures can be used to explain clinker-forming actions in water-gas generators, according to William T. Reid and John F. Foster, Battelle Memorial Institute, Columbus, Ohio. The formation of clinker has been for many years one of the most troublesome problems in the burning of solid fuels.

Mr. Reid declared that clinkering in water-gas generators can be reduced to a minimum through the proper choice of fuels, sound operating principles, and the addition of viscosity-control agents.

Studies with an experimental generator have shown, Mr. Reid said, that slags with a viscosity of approximately 50 poises at 2600° F behave in a manner which permits easy removal of the resulting clinker. Consequently, methods of adjusting the viscosity of a slag to this level by the addition of silica to increase viscosity, or by mill scale to reduce viscosity, are proposed.

H. W. Nicolson, Public Service Electric & Gas Co., Newark, N. J., opened the Wednesday morning meeting with a brief summary of the activities of the Distribution Committee of which he is

chairman. One important way that distribution men can help technical men to stem the staggering increases in costs, he said, is to help cut down losses through wasted time.

The construction and maintenance of regulator vaults was treated in detail by Hubert G. Howell, Memphis Light, Gas and Water Division, Memphis, Tennessee. He showed how his department has cut to a minimum the number of dangerous installations on its lines.

"We owe it to our loyal employees," he declared, "to give them safe and modern working conditions, thereby not only increasing the efficiency of our crews, but assuring ourselves the peace of mind that goes with a job well done."

Still a further point on the subject of safety was presented by D. C. Stewart, Niagara Hudson Power Corp., in his address entitled "Accident Prevention in the Gas Industry."

Incentive needed

"It is true that the working environment must be safe," he stated. "It is also true that men must be fitted to perform their jobs safely and they must know how to perform the work safely, but all that, though essential, is not enough. *Men must want to work safely.* Then we will have safety."

Mr. Stewart showed that injury rates though still relatively low are beginning to move upwards and cautioned the gas industry against moving back into the "dark ages of accident prevention!"

"Today the realization grows," he added, "that accidents and general inefficiency of operations are so inextricably bound together that the accident rates are not only indexes of how often and how badly people are injured, but of how a number of other vital factors in the operation of the business are going."

The responsibility of the meter superintendent was defined by R. J. Ott, The Philadelphia Gas Works Co., Philadelphia, Pa., as the attainment for his company of the "best possible gas measurement at the lowest possible cost."

Satisfactory progress will result, he said, only when good measurement and low cost are considered together. Meter manufacturers have worked effectively, he added, to produce a better meter and to keep the cost down.

Mr. Ott listed the factors influencing meter performance as gas conditions, meter design, meter manufacture, handling and setting, and maintenance.

One important way to substantially reduce distribution maintenance costs was described by M. C. Miller, Ebasco Services, Inc., New York, in a paper entitled "Hidden Corrosion Costs."

Cathodic protection, correctly engineered, is the answer to many problems, he declared. Should the nation's defense program be stepped up, cathodic protection quite possibly could save the day for companies which can not obtain replacement pipe.

Mr. Miller stated the belief that within a few years most pipeline companies and gas utilities will have corrosion departments employing competent engineers for cathodic protection of pipelines.

Following the report of the Nominating Committee by C. S. Goldsmith, The Brooklyn Union Gas Co., on Thursday afternoon, Mr. Cherry as retiring chairman presented an engraved gavel to his successor, Mr. Fraser, the first chairman of the newly created Corrosion Committee. Mr. Fraser was succeeded as committee chairman by Sidney E. Trouard, New Orleans Public Service, Inc.

The Motor Vehicle Committee's contributions to the meetings were then introduced by Chairman M. C. Alves, Union Electric *(Continued on page 52)*

J. G. Sweeney (top left), chairman, Chemical Committee; E. O. Mattocks, Phillips Petroleum Co.; C. C. Russell, chairman, Gas Production Committee; L. L. Hirst, Bureau of Mines; (bottom) H. Bruce Andersen, The Philadelphia Gas Works Co.; J. D. Von Maur, Consumers Gas Co. of Toronto

R. J. Ott (left), The Philadelphia Gas Works Co., with Henry W. Nicolson, Newark, N. J., chairman, A.G.A. Distribution Committee, with speakers

D. C. Stewart, Niagara Hudson Power Corp., and Hubert G. Howell, Gas Division, Memphis Light, Gas & Water Division, Memphis, Tennessee

Appliance directory to appear semi-annually

Starting January 1, 1949 the Directory of Approved Gas Appliances and Listed Accessories of the American Gas Association Testing Laboratories will be published in complete form on a semi-annual instead of a quarterly basis.

The directory will be distributed to subscribers each January and July under the new plan. Changes in listings and new approvals of appliances and accessories made during the intervening months will be listed in a monthly supplement to the directory in same manner as at present.

The change was made principally because of sharp increases in printing costs which were further heightened by the large amount of equipment now listed. The last directory ran to 330 pages. The subscription price of $2.00 per year remains unchanged, however, single issues of the directory will be $.75 per copy and monthly supplements will continue at ten cents per copy. Subscribers have been notified of the new arrangement.

Numerous contacts were made recently with various subscribers principally concerned with the inspection of gas appliance installations. These contacts have resulted in a great many complimentary letters telling of the assistance provided by the directory in checking gas appliances installed under conditions where compliance with local regulations or those of qualified testing organizations is required. For a number of years the directory has been extensively employed in this manner.

The directory has long enjoyed a wide circulation among utility companies, manufacturers, dealers, mail-order houses and other agencies interested in the purchase and sale of gas burning appliances. In addition it is extensively consulted by teachers, students and others interested in programs of consumer education who have found it a valuable source of information on the testing and approval services furnished by the Laboratories.

Safety procedures are formulated

Completing two and a half years of study, planning and organization work, the Safety Committee of the American Gas Association Testing Laboratories has prepared safety procedures to be followed in testing and research operations dealing with gas and gas appliances.

Contained in an interesting and informative booklet, "Safety is our Business," such subjects are covered as the importance of good housekeeping and procedures to be followed when working with various types of gases, as well as the installation, handling and testing of appliances.

The booklet is intended for internal use of the Laboratories staff and visiting manufacturers' representatives, but also contains information of value to any organization engaged in appliance testing or research.

In reporting on the committee's activities for the year, Frank E. Hodgdon, chairman, called attention to the excellent safety record of the Laboratories and the initiation of regularly scheduled safety meetings and study courses for members of the staff.

Canada nears

(Continued from page 29)

city and town is piped for gas and the Province's promotion literature remarks: "One of the obvious results of the use of natural gas commented on by every visitor is that the buildings in cities and towns look so fresh and clean. This is due . . . most of all to the almost complete absence of smoke from the atmosphere."

Use of natural gas industrially in Alberta dates back to the 19th century. Medicine Hat, "Canada's gas city," was the first to attract industry by advertising an adequate supply of ideal fuel. At Medicine Hat are extensive ceramic plants, while Redcliffe has glass works. Throughout southern Alberta cheap natural gas supplies vast greenhouses and power stations serving utilities, industry, and irrigation. Alberta is far and away in the lead in Canada's gas race, producing six times as much as all other Provinces combined. But this is only a beginning.

With a new Mid-Continent oil field taking shape on her prairies, Alberta is not neglecting gas. Far in the northwestern corner of the Province, in the Peace River country, 600 miles northwest of Edmonton, McMahon Brothers are drilling on a tract of 775,000 acres leased from the Crown, intending to build a gas line through the Rockies to Vancouver. Their first five wells have been completed as large producers.

Large leaseholders

The McMahons and their associates, notably Dr. Theodore Link (formerly chief geologist of Imperial Oil, who developed the Norman Wells field that supplied the wartime Canol project and in 1947 Leduc), are presently the largest leaseholders in Alberta. Their seven million acres top Imperial's 4.5 million, Stanolind's reported blocking of half that amount, and Bryan Newkirk's million-acre holding.

The property of Stanolind and the McMahons is located principally in the northern wildcat area, about Lesser Slave Lake and the upper Athabaska River. The acreage of Imperial and Newkirk is widely scattered throughout producing fields, often adjoining or supporting production. Imperial's principal production is in the spectacular Leduc field, south of Edmonton, Newkirk's at Lloydminster, 160 miles easterly on the Saskatchewan border. Gulf holds much acreage in the extreme southwest, near Lethbridge.

Almost every American oil company is represented in Alberta. In the month of September over 15 million acres of petroleum rights were leased by the Provincial Government and it is estimated that about four times that acreage remains unleased, mostly in the northern lake region.

Industry news

Southern Counties alters sales policy

A NEW gas appliance sales policy for Southern Counties Gas Co. of California, Los Angeles, has been announced by Norman R. McKee, vice-president in charge of sales and public relations. The policy was inaugurated on October 1, 1948.

Arrangements have been completed with various range manufacturers, water heater manufacturers and the distributors of gas refrigerators, gas clothes dryers and gas incinerators to provide display appliances for each of the company's 42 display floors. The program will be expanded from time to time to include additional manufacturers and distributors.

An outside sales force of 33 salary-plus-commission sales representatives has been engaged, and the prime objective of these men will be to sell domestic gas appliances at retail prices to consumers on the company's lines.

These new sales representatives have completed an intensive sales training course, covering facts about gas and gas appliances, at the company's Los Angeles office. In addition, gas appliance manufacturers and distributors in the Los Angeles area have conducted sales meetings stressing the advantages of their particular product. A continuing sales training program has been arranged so that these new sales representatives will be given every opportunity to secure additional information to help in their new work.

Abandoning the direct sales policy which has been in force for many years, Southern Counties Gas Company has now virtually discontinued the practice of retaining for its own account any retail sales of gas appliances. In the future, sales contracts for gas appliances sold at retail by company salesmen will in most instances be assigned to eligible gas appliance dealers.

All gas appliance dealers operating from locations on the lines of the Southern Counties Gas Company are invited to participate in the new program. To become eligible, the dealer agrees to: make monthly reports to the company indicating the number of gas appliances sold by him and installed on the company's lines; to pay the company a selling commission for all sales contracts assigned to him, and to make all original installations and adjustments in accordance with gas company standards.

The company will allocate sales made by its salesmen to an eligible dealer according to the percentage of gas appliances sold by that dealer, for installation on company lines, in relation to other dealers participating in the program.

Southern Counties Gas Company reports that it has endeavored to develop a dealer cooperative sales policy which will meet with the full approval of the dealers. For the dealers it means direct benefits from sales contracts assigned to them by the company. The company's objectives will be met through the installation of more high quality gas appliances on its lines.

A.G.A. host to nation's food editors

FOOD editors and women's page editors representing a total metropolitan daily newspaper circulation of 26 million persons received up-to-date information on the gas industry's home economics and food preparation program during the annual Newspaper Food Editors' Conference at the Waldorf-Astoria Hotel, New York, the week of September 27. Approximately 115 editors took part in the conference which accented food preparation and appliance developments.

The American Gas Association collaborated with Servel, Inc., in presenting a one-hour program which drew the commendation of the editors. Principal A.G.A. speaker was Jessie McQueen, home service counsellor, who was introduced by H. Carl Wolf, A.G.A. managing director.

Twelve million customer contacts a year are made by 1,500 home economics women in home service departments of the gas industry, Miss McQueen pointed out. "Not the least important home service function," she said, "is instruction to homemakers on food—its nutritional value, its preparation and storage, and of course, its cooking."

Miss McQueen announced the Association's home economics recruitment program which is designed to attract home economics graduates to gas utility home service careers. An important part of this program is the preparation of a series of eight, two-sided, 12-inch records pointing out the different types of careers open in home economics.

Servel, Inc., presented the results of the company's time-motion study in the kitchen in a dramatic skit acted by members of the promotion and Home Institute staff. During a series of scenes in the living room and kitchen, the actors brought out the painstaking studies of movement in the kitchen which evolved the most efficient location of the sink, refrigeration and cooking units. A beautiful model kitchen occupied the center of the stage during much of the presentation.

Ladies' hats and an imported light-weight portable typewriter were given to editors holding lucky numbers.

Research top convention topic

Dr. Clyde E. Williams (left) director, Battelle Memorial Institute, speaker who termed A.G.A. sponsored research "well organized and highly effective," with Chairman A. C. Cherry, Technical Section

Battle-wagon gets gas

HOW many natural gas utilities can count a battleship among their customers?

It is believed that Houston Natural Gas Corp., Houston, Texas, is the first to enjoy that distinction with a connection providing gas service to the historic battleship *Texas* which is permanently anchored at San Jacinto Battleground.

From a meter on the bank of the land-locked basin where the ship is berthed, a service line of flexible copper tubing has been run under five feet of water and up the side of the ship to the quarter-deck. The gas will be used to provide heat for the quarters of the caretaker, the trophy room, the ward room and several other locations where visitors and crew can warm themselves during the winter. Provisions have also been made for cooking and refrigeration services for the caretaker of the historic warship and his nine-man crew.

Supercompressibility calculator improved

A NEW improved supercompressibility calculator has been designed and developed by Panhandle Eastern and is proving to be a distinct advancement over previous methods used for reading supercompressibility factors.

The need for such a device in the gas measurement department arose almost a year ago. M. K. Hager, engineering assistant to O. W. Morton, vice-president in charge of operations, suggested the design for the circular computer which would read directly supercompressibility factors for displacement meter and orifice meter measurements.

A preliminary pasteboard model was fashioned and improvements were constantly underway. By March a local Kansas City manufacturing firm was constructing the first computer. In April the arrangement was copyrighted and installed.

"This computer is very applicable to the reading of supercompressibility factors," reports F. C. Walters, superintendent of transmission gas measurement, "in addition to being accurate and time-saving. This device is of interest not only to us, but to others in the natural gas industry."

This new and improved calculator has proved effective in reading supercompressibility factors

Lone Star completes financing program

LONE STAR GAS CO., Dallas, Texas, has completed a financing program, under which it will borrow a total of $50 million to provide new funds for expansion of the facilities of its system and to retire outstanding bank loan notes, according to an announcement by President D. A. Hulcy. One-half of the proceeds from the new loans, or $25 million, will be used to pay off outstanding bank loan notes, and the remaining $25 million of new funds will be applied to the construction programs of the company.

"The program includes additional gathering and transmission lines, compressor stations, the drilling of wells, extensions and additions to city distribution systems, and other facilities, all of which will enable the company to render a more complete gas service to all of its customers in the 332 cities and towns in which it operates," Mr. Hulcy said.

"In the three-year period since the end of the war, more than 80,000 additional customers have been added to the system, and it is apparent that the next few years ahead will witness a comparable rate of growth; and the requirement of additional facilities to serve new customers will be great."

Stanolind halts construction project

A BLOW to the progress of the synthetic fuels development was dealt by high building costs recently when Stanolind Oil and Gas Company announced that it has decided to discontinue its plant construction project at Garden City, Kansas.

E. F. Bullard, president, issued a statement that increases in the estimated cost of the synthetic gasoline and chemical plant which it has undertaken to build at Garden City have been so great that since the active program was initiated two years ago the estimated capital investment required for the project has more than doubled. As a result the company will discontinue the project. However, plans are being formulated which may permit reinstatement of a similar program approximately three years from now.

While it was stated that the process which has been developed for the synthesis of gasoline from natural gas is technically on a better basis than it was two years ago, present high construction costs and the prospect that costs will go even higher in the near future were the determining factors leading to the decision to discontinue at this time.

The plant site will be retained, but construction and other contracts involving the project will be canceled and all financial obligations that Stanolind has incurred will be paid off at this time.

No change is contemplated in the firm's other construction projects including the chemical plant at Brownsville, Tex., and the natural gasoline plant near Ulysses, Kansas.

New home service kitchen booklet

A VALUABLE picture supplement to the booklet "Modern Kitchens for Homemaking Instruction" (issued by the American Gas Association in 1946) has just been published and is now available to the industry at 20 cents a copy. The supplement was prepared in the A.G.A. Home Service Committee, Elizabeth Lynahan, The Peoples Gas Light and Coke Co., chairman, by a special subcommittee headed by Mrs. Rita Calhoun, Portland (Oregon) Gas and Coke Company.

Complete with 42 illustrations, the new publication represents "Success Story No. 1" in the construction and modernization of homemaking classrooms, pointing the way to youths' increasing interest in the skills and arts of modern homemaking. It is expected that the numerous pictures of modernized home economics classrooms throughout the country will prove of great benefit to school authorities who are just entering the planning stage in the home economics field. The bulletin was edited by Jessie McQueen, home service counsellor, American Gas Association.

Range firm sold to Cincinnati group

THE Standard Gas Equipment Corp., Baltimore, Md., manufacturer of domestic and commercial gas ranges, has been purchased by the Rose-Moskowitz Syndicate headed by S. G. Rose and Philip L. Moskowitz, Cincinnati industrialists who also own and operate the Empire Case Goods Co., Jamestown, N. Y.

W. Frank Roberts was reelected president and Philip L. Moskowitz, Cincinnati, was elected chairman of the board. S. G. Rose, Cincinnati, was elected first vice-president; A. J. Butchkes, Cincinnati, was elected executive vice-president; Joseph H. Hoodin, treasurer, and Fred Weiland, secretary. J. W. McNair continues as vice-president and general manager; H. C. Erhard, as vice-president in charge of sales; V. I. Lentz continues as comptroller, and was named assistant secretary and treasurer.

Providence Gas Company elects new officers

ELECTION of L. E. Knowlton as executive vice-president, Providence Gas Co., Providence, R. I., has been announced by R. L. Fletcher, president. J. L. Johnson was elected vice-president in charge of customer relations; Dana M. Swan, treasurer and assistant secretary, and A. E. Erickson, secretary and assistant treasurer.

Mr. Fletcher also announced the retirement of Arthur F. Short, secretary and treasurer, who has been an employee of the company for 52 years and an officer for 38 years. Mr. Short is a member of the American Gas Association.

Concurrently, the retirement of another veteran employee, Augustus W. Bourne, was announced. Mr. Bourne was formerly assistant secretary and assistant treasurer and has been an employee for 38 years and an officer for 29 years.

Mr. Knowlton, a graduate of Harvard University and Massachusetts Institute of Technology, entered the company's employ in 1919. He advanced to assistant engineer of manufacture in 1930, engineer of manufacture in 1931, engineer in 1941, and vice-president and engineer in 1948. He is a past-chairman, Technical Section, American Gas Association.

L. E. Knowlton

J. L. Johnson

A. E. Erickson

D. M. Swan

Mr. Johnson joined the gas company in 1913. He was appointed the company's first purchasing agent in 1917 and became sales manager in 1924. He is a past-president of the Rhode Island Purchasing Agents, and active in the American Gas Association where he is a former chairman of the A. G. A. Refrigeration Committee, Residential Gas Section.

Mr. Swan graduated from Bowdoin College and Oxford University, and holds numerous managerial posts in the business field.

Mr. Erickson graduated from Northeastern University and joined the company in 1922. He has since served as assistant treasurer and assistant secretary. He is an active member of the National Association of Cost Accountants, the New England Gas Association, Guild of Gas Managers of New England, and the American Gas Association.

Personal and otherwise

Bevan retires from Canadian company

R. L. BEVAN has retired as chief engineer, Union Gas Co. of Canada, Ltd., after 37 years' activity in the Canadian Gas industry.

R. L. Bevan

Since 1911 Mr. Bevan has been associated with the development of the industry. Starting when the Ontario natural gas industry was in its infancy, he has seen a tremendous growth in southwestern Ontario to a point where today the Union company alone serves 70,000 customers in the area between London and Windsor.

Mr. Bevan's first experience in the gas industry was in the Tilbury Field at Port Alma where he came into early contact with operating and development problems. He has served with Volcanic Oil and Gas Co., which held majority interest in the merger which became the Union company in 1912, with Calgary Gas Co., and Canadian Western Natural Gas, Light, Heat and Power Company. In 1933, Mr. Bevan was appointed general manager of the natural gas division, Union Gas Co. of Canada, Ltd., and in January 1943 was made chief engineer. He is a member of the American Gas Association.

Peoples Natural Gas elects Plank director

RICHARD J. PLANK, superintendent of distribution for The Peoples Natural Gas Co., Pittsburgh, Pa., since 1945, has been elected to the company's board of directors.

In making this announcement, E. M. Borger, president, reported that Mr. Plank was elected to fill the place left vacant by the recent retirement of S. C. Preston, vice-president and a director of the company.

Mr. Plank in 1935 joined the gas company in Pittsburgh in a civil engineering capacity. He had previously been employed at Wellsboro, Pa., in civil engineering work for New York State Natural Gas Corp., an associated company. In 1941, Mr. Plank was named chief civil engineer, The Peoples Natural Gas Co., and in 1945 he was advanced to superintendent of distribution.

Sellman advanced by Consolidated Edison

NILS T. SELLMAN has been elected assistant vice-president, Consolidated Edison Co. of New York, Inc., and will assist Ephraim F. Jeffe, vice-president in charge of sales. Mr. Sellman's election follows his recent resignation as vice-president, Westchester Lighting Company and Yonkers Electric Light & Power Co., subsidiaries of Consolidated Edison.

Full details of Mr. Sellman's extensive background with the American Gas Association and individual utility companies is carried on page 37 of the October 1948 MONTHLY.

Indiana service record

Dean H. Mitchell (left), president, Northern Indiana Public Service Co., congratulating Joseph L. Hain, general gas foreman, Hammond district, on completion of 50 years with the company as Mrs. Hain looks on. Numerous gifts were presented

New A.G.A. members

Gas Companies

Gas Light Co. of Columbus, Columbus, Ga. (C. K. Oxford, general manager)

Manufacturer Companies

Pennsylvania Range Boiler Co., Philadelphia, Pa. (Wm. K. Goldstein, vice-president)
Valvco, Limited, New York, N. Y. (James E. Frank, partner)
Wicks Products, Long Island City, N. Y. (William P. Wicks, owner)
Williams-Wallace Co., San Francisco, Calif. (A. L. Hawley, Jr., sales manager)

Individual Members

W. P. Conyers, Jr., Piedmont Natural Gas Corp., Spartanburg, S. C.
Jacob A. Farber, The Peoples Gas Light & Coke Co., Chicago, Ill.
Herbert Grabowski, Esso Standard Oil S.A., San Salvador, El Salvador
F. G. Harriman, New England Power Service Co., Boston, Mass.
J. Robert Hornor, Delaware Gas Co., Clarksburg, W. Va.
George F. Horowitz, Shanghai Gas Co., Ltd., Shanghai, China
Joseph H. Kerrick, Philadelphia & Reading Coal & Iron Co., Philadelphia, Pa.
Norman A. MacDonald, The Peoples Gas Light & Coke Co., Chicago, Ill.
A. Malcolm Mager, New Bedford Gas & Edison Light Co., New Bedford, Mass.
Gerald J. Manahan, The A. P. Smith Mfg. Co., East Orange, N. J.
Robert G. McElwain, A. O. Smith Corp., Clayton, Mo.
James M. Mitchell, The Peoples Gas Light & Coke Co., Chicago, Ill.
S. Scollay Moore, Esso Standard Oil S.A., Panama, Republic of Panama
Arve Nilsen, Arendal, Norway
E. P. Pfatteicher, Philadelphia Electric Co., Chester, Pa.
Kurt Richter, The Connecticut Light & Power Co., Waterbury, Conn.
Leslie W. Rivard, The Detroit Edison Co., Port Huron, Mich.
Thomas B. Tinney, The Philadelphia Gas Works Co., Philadelphia, Pa.
Avery G. Van Campen, Clark Bros. Co., Inc., New York, N. Y.

Technical highlights

(Continued from page 47)

Co. of Missouri, St. Louis, who showed that efficient driver control is the key to major overhaul costs. Selecting and training drivers, he asserted, is as important as selecting a new piece of equipment.

The increasing need for standardization of truck bodies within the gas and electric industries was stressed by the next speaker, Brooke Daly, McCabe-Powers Auto Body Co., St. Louis.

Some of the advantages of standardization were described as increased production of truck bodies and a consequent reduction in costs. Mr. Daly then outlined developments in the standardization of vehicles which have been brought about largely through the aid of the gas and electric industries.

Latest developments in modern purging techniques were analyzed by G. R. King, Philadelphia Electric Co., and chairman, A. G. A. Purging Committee.

"In the gas industry today, the general meaning of 'purging' is the act of replacing the atmosphere within a container by an inert substance in such a manner as to prevent the formation of flammable mixtures."

Preparation of a purging handbook which will prove authoritative and complete is in the advanced stages, Mr. King reported, and it is hoped that the volume will be ready for publication before the end of 1949.

He also pointed out the necessity for top management to provide the initiative and impetus to employ purging as the "only absolutely safe method for taking apparatus out of service and returning it to service."

Wide interest was noted in the showing of a composite film on mechanization in distribution. Assembled by G. E. Hitz, Central Hudson Gas & Electric Corp., Poughkeepsie, N. Y., and edited by a special committee, the film showed various installation jobs and labor saving machinery in action.

Home service shows

(Continued from page 44)

"While we in America have not made a single great, basic invention, what we have done is even greater. We have made innovations of these basic inventions blended and combined them to build our great civilization. Today we are great in science, in technology and medicine but our greatest contribution lies in the field of human relations.

"We know what no other nation has learned, that people of many races, many religions, and nationalities can live side by side in peace and understanding.

"Your organization faces all the people that make America and one of your chief problems is to recognize the fact of our differences and that America is made up of differences." Pointing up the need for courage to fight for rights of democracy, she said that "the job of home service also is important in its contribution in helping build the mature citizens we need to face this world in this time of the atomic age."

Hostesses commended

In closing the breakfast, Miss Lynahan expressed appreciation to the manufacturers of "CP" gas ranges, who had made available for the guests the red rose boutonnieres and also to the 20 home service directors who as hostesses did much to make the guests fully welcome. They included: Mrs. Jane Watkins, Allentown-Bethlehem Gas Co., Allentown, Pa.; Dorothy F. O'Meara, The Bridgeport Gas Light Co., Bridgeport, Conn.; Mrs. Mary Belle Burnett, The Cincinnati Gas & Electric Co., Cincinnati, Ohio; Mrs. Florence J. Neeley, Consolidated Gas Electric Light & Power Co., Baltimore, Md.; Jane Schleicher, The East Ohio Gas Co., Cleveland, Ohio; Mrs. Mary N. Hall, Elizabethtown Consolidated Gas Co., Elizabeth, N. J.; Kathryn L. Barnes, Equitable Gas Co., Pittsburgh, Pa.; Flora G. Dowler, The Manufacturers Light & Heat Co., Pittsburgh, Pa.; Eleanor Morrison, Michigan Consolidated Gas Co., Grand Rapids, Mich.; Betty Jane Frahm, Montana-Dakota Utilities Co., Bismarck, N. D.; Ruth Severson, The Peoples Natural Gas Co., Pittsburgh, Pa.; Beatrice Cole Wagner, The Philadelphia Gas Works Co., Philadelphia, Pa.; Mrs. Eleanor Wiese, Public Service Electric & Gas Co., Newark, N. J.; Irene Muntz, Rochester Gas & Electric Corp., Rochester, N. Y.; Ida Lansden, Rosslyn Gas Co., Arlington, Va.; Martha Carnes, Servel, Inc., Evansville, Ind.; Sarah Sicker, South Jersey Gas Co., Atlantic City, N. J.; Mrs. Pauline Treisch, The Tappan Stove Co., Mansfield, Ohio; Ruth Sheldon, Washington Gas Light Co., Washington, D. C., and Mrs. Joan Hodgdon, A. G. A. Testing Laboratories, Cleveland, Ohio.

Outstanding Achievement

(Continued from page 10)

lating Engineers.

A comprehensive, aggressive sales promotion campaign conducted in Southern California during the year won top honors for the West Coast utility. All forms of promotion were utilized to drive home the advantages of gas summer air conditioning, including live demonstration displays, permanent installations in company buildings, large-scale newspaper advertising, radio commercials and home and building expositions. Full-time architects, builders and contractors' representatives continuously promoted gas summer air conditioning equipment in the building field. General sales promotional meetings at key locations secured the active cooperation of employees in developing gas air conditioning prospects. Copies of the A. G. A. Reference Manual for Modern Gas Service and other sales literature were used extensively.

The winner in Division A, which includes directors in home service departments of three or more individuals is Miss Kirtland, Columbus, Ohio. Miss Kirtland was cited for the outstanding educational training program she has developed for her company's "Betty Newtons," as the home service personnel are called.

In Division B, which was confined to home service departments of three or less members, the top honor went to Mrs. Mixter for her effective activities with educational groups. Mrs. Mixter is well known in the Hartford area for her community service work with Connecticut homemakers. Following teaching experience, she joined The Hartford Gas Company to organize the utility's home service department 20 years ago.

The remaining three winners were named in Division C which is open to any individual member of a gas utility home service department.

Miss Dinneen was recognized for the excellent kitchen planning contest which she developed for the Pittsburgh area schools. Although she has been a member of Equitable Gas Company's home service department only for the past three years, she is known already for her work with Pittsburgh homemakers.

The second winner in Division C, Mrs. Oxrider, received an award for a well-executed plan developed for wide community coverage in equipment promotion. She joined the home service department of the Dayton Power & Light Company ten years ago and has made an enviable record.

Miss Wren was cited for an original idea of presenting the benefits of the automatic gas water heater to homemakers. She joined the home economics department of the Public Service Electric & Gas Company in 1931.

Accountants study

(Continued from page 36)

such courses are available. The staff should also be willing to change to the new concepts of doing a particular job. Mr. Barnum stated further that employees should know about proposed changes before they are made and participate in the changes.

John A. Williams in summarizing the activities of the current Association year said that one of the highlights was the splendid joint E.E.I.-A.G.A. Accounting Conference held in St. Louis last April. He paid high tribute to the cooperation he received from the various committees and for the work which they accomplished.

Leith V. Watkins, Panhandle Eastern Pipe Line Co., New York, presented a gavel to Mr. Williams symbolizing completion of a year of accomplishment as chairman of the Accounting Section. Mr. Watkins then read the report of the Nominating Committee, and by unanimous vote L. E. Reynolds, Connecticut Light and Power Co., Waterbury, Conn., was elected chairman for the ensuing year. Thereupon Mr. Williams presented a chairman's gavel to the incoming chairman. John H. Roper, Washington Gas Light Co., Washington, D. C., was elected Section vice-chairman.

The newly-elected chairman of the Accounting Section then announced the names of the chairmen of the various committees. In conclusion, he pledged that he would try to carry on the fine tradition of the Accounting Section and hoped that he would have an active organization to assist him.

OBITUARY

R. E. Wertz

until last March chief executive officer of a group of affiliated gas companies in West Texas, died at Boston, Mass., September 20, of a heart attack. He was 71 years old. At the time of his death he was chairman of the Board of Amarillo Oil Company.

Companies Mr. Wertz had supervised from 1931 to last March included Amarillo Gas Co., Amarillo Oil Co., Clayton Gas Co., Dalhart Gas Co., Panhandle Pipe Line Co., Red River Gas Co., and West Texas Gas Co., all of which are engaged in the production, transmission and distribution of natural gas to 49 cities and towns in West Texas and to Clayton, New Mexico.

A former chairman of the Natural Gas Department, American Gas Association, Mr. Wertz had been in the oil and gas business for 33 years. In 1917 he became vice-president, Producers and Refiners Corp., in charge of drilling, production and pipelines in the Rocky Mountain region, and later in the Mid-Continent region. Explorations under his direction resulted in the discovery of several important gas and oil fields in Wyoming, New Mexico and Utah, among them the Wertz Field in Carbon County, Wyoming.

Well-known throughout the country in gas utility and oil circles, Mr. Wertz was also a member of the American Petroleum Institute, Southern Gas Association, Mid-Continent Oil & Gas Association, and Pipe Liners Club.

Edmund Sweet

honorary president of The Natural Gas and Petroleum Association of Canada and solicitor for the Dominion Natural Gas Co., Ltd., for many years died at Brantford, Ontario, recently in his eighty-ninth year.

Mr. Sweet was one of the organizers of The Natural Gas and Petroleum Association of Canada in 1919 and from 1932 to 1946 served as it president. He was also one of the founders of the Brantford Shubert Choir and a former president of that organization which attained international recognition.

Active in the legal profession until he was 87, Mr. Sweet was for many years a bencher of the Upper Canada Law Society.

Romus T. Bergh

division manager, George D. Roper Corp., died in Kansas City, Missouri, on September 25. A well-known figure in the gas appliance business, Mr. Bergh was 62 years old at the time of his death.

Joining the Roper company in November 1929, he progressed rapidly in the organization. In his capacity as division manager, he supervised activity in Missouri, Kansas, Oklahoma, Iowa, Nebraska and Arkansas.

In addition, Mr. Bergh was an active participant in many gas industry groups, including the American Gas Association, Liquefied Petroleum Gas Association, Southern Gas Association, Midwest Gas Association, Missouri Gas Association, and Gild of Ancient Supplers.

Hall high B.t.u.

(Continued from page 28)

12 courses, 2½-inch space; top 12 courses, two-inch space. All courses were staggered.

At the start the generators were checkered with nine courses of silicon carbide brick with four-inch spacing staggered. As a result of the severe temperature changes in the top courses of generator checkers, the brick failed rapidly by spalling and after approximately 1,200 hours all of the checkers had broken into rubble and fallen to the base of the generators.

Clay checkers (both first quality and super duty) were tried in the generators but although the cost was much lower, failure due to spalling occurred just as rapidly as with the silicon carbide brick, but it was found that the ability of the machine to vaporize and crack oil was considerably reduced with the fire-clay brick as compared with silicon carbide brick.

It has been noted that the original generator checkers failed course by course from the top down, the broken brick falling to the bottom through the four-inch spaces between the brick. Therefore, it was reasoned that if the brick were placed close enough together to prevent the broken brick from falling to the bottom, the pieces of broken brick on top would take the bulk of the thermal shock and protect the supporting brick beneath. This was found to be true in practice.

All of the above checkerbrick experience was gained during the past winter period prior to starting the tests.

The tests were started with seven courses of generator checkers, one (bottom) of fire-clay spaced ¾ inches and six of silicon carbide, alternate courses being spaced 4½ inches and one inch. These checkers were still in service at the conclusion of four tests (975 hours of operation). Although the top courses had broken down into a mass of rubble, no decline in oil handling ability had been noted.

The first 13 percent Conradson carbon bunker oil used had an ash content of 0.16 percent and as a result the passages in the closely spaced generator checkers and rubble gradually became plugged with ash. The quantity of ash in the oil charged to the machine amounted to approximately 700 pounds per day.

The ash was deposited along with carbon which was consumed on each cycle, thus freeing the ash, most of which carried through the machine and out the stack. However, a sufficient amount of ash remained in the generators to slowly throttle the flow through the machine. No carbon deposit remained in the machine, however, and if a high carbon bunker oil having a lower ash content had been used, it is believed that no stoppage would have resulted with alternate 4½-inch and one-inch checker spacing. The six percent carbon oil used continuously throughout last winter had an ash content of 0.04 percent.

The second 13 percent Conradson carbon bunker oil used also had an ash content of 0.16 percent. For this test new silicon carbide generator checkers were installed with four-inch spacing throughout. This oil was used successfully in this manner, but there was a considerable discharge of ash from the stacks. Based on previous experience with this checker spacing it is believed that the brick will fail in about 1,200 hours.

Based on our experience to date we would recommend the use of the alternate one-inch and 4½-inch checker spacing if low ash oils are used (.04% ash or less) and 4″ checker spacing if higher ash oils are used.

TABLE I—TAR ANALYSES

						Average Carbureted Water Gas
Conradson carbon content of oil used, %	.20	3.16	6.02	13.03	12.56	6.0
Tar analysis:						
Specific gravity	1.159	1.189	1.208	1.214	1.211	1.2
Free carbon, CS_2 Extraction, %	9.70	11.92	16.18	15.76	16.78	
Free carbon, C_6H_6 Extraction, %	9.66	12.64	16.53	17.18	16.34	16.3
Unsulfonated residue						
Up to 300°C, %	1.71	1.33	.63	.68	.45	1.14
300° to 355°C, %	.43	.41	.25	.32	.32	.65

TABLE II—OIL ANALYSIS

Conradson carbon, %	.20	3.16	6.02	13.03	12.56
Ash content, %	.02	.01	.04	.16	.16
Enriching value, M B.t.u. per gallon (Dick Method) (avg. of 1400, 1500, 1600°F results)	103.6	98.8	102.5	93.8	95.2

TABLE III—OPERATING RESULTS

B.t.u. of gas per cubic foot	1046	1006	1047	966	974
Specific gravity of gas	.855	.866	.834	.867	.833
Gals. heat oil per M.c.f.†	.99	.80	.95	.28	.69
Gals. make oil per M.c.f.†	11.50	11.46	10.67	11.69	13.31
Gals. total oil per M.c.f.†	12.49	12.26	11.62	11.97	14.00
Gals. tar per M.c.f.†	2.56	2.73	2.30	2.63	*
Gas made per day, M.c.f.†	5,952	5,088	5,088	3,576	3,504
Thermal efficiency, %	79.2	80.9	81.8	80.6	

* Tar measurement lost due to stills boiling over.
† 1,000 B.t.u. basis.

All tests were made with the maximum oil load permissible while maintaining smoke-free operation.

Several samples of oil gas were sent to the Bureau of Standards for analysis by mass spectrometer. We have not yet received the results of all of these analyses but the following tabulation shows the average of the two analyses which have been completed.

Carbon dioxide	4.9 percent
Illuminants	26.4
Oxygen	0.2
Carbon monoxide	3.0
Hydrogen	18.0
Paraffins	33.1
Nitrogen	14.7
Total	100.3
Sp.Gr. (Ranarex)	0.856
B.t.u. (Thomas Calorimeter)	1,030

In every test the tar quality was comparable with the tar normally produced at our plant from carburetted water gas when using comparable oils and when reforming approximately ten percent to 15 percent of the oil used. The tar produced was dehydrated by the same processes used for other tars. The principal characteristics of the tar produced are

shown in the table opposite. All analyses were made on the dehydrated tar and do not include the light oils recovered during dehydration. If these light oils are remixed with tar, the specific gravity and free carbon contents would be reduced.

The oil gas manufactured by this method contained, after normal condensation, considerable quantities of aromatic and unsaturated compounds which are condensable at normal gas distribution temperatures. If these compounds are not removed at the plant, drippage and also stoppages in appliances will increase. In Baltimore all gas is scrubbed with Atlantic "K" scrubbing oil at a rate of approximately 1,500 gallons per M.M.c.f. of gas. Under these conditions of scrubbing the quantity of crude light oil removed from the high B.t.u. oil gas amounted to approximately 0.35 gallons per M.c.f. and the B.t.u. loss due to scrubbing was about 50 B.t.u. per cubic foot.

The quality of the light oil recovered was the same as that recovered from carburetted water gas, approximately 75 percent distilling at 150°C and 90 percent distilling at 200°C. The cost of operating the light oil recovery plant and the cost of replacing the B.t.u. loss in the gas is more than offset by the revenue from the sale of the light oil. In addition to this, the oil scrubbing brings about a reduction in the cost of removing drippage and in servicing appliances.

A summary of the oils used and the test results accompanies this article.

Thus it may be seen that the tests proved conclusively that this type of machine is capable of producing 1,000 B.t.u. oil gas with oil having Conradson carbon contents from 0.2 to 13 percent. During the entire period of operation of this machine no stoppage has ever developed in any of the set shells or checkers as a result of carbon deposition and no carbon has been removed manually or by burning by additional blasting. The superheater checkers used during these tests are the original checkers and now have been in service for 5,100 hours. Therefore the original objective of this research project has been successfully reached.

It should be remembered that these tests were run after adapting certain equipment which was available and which therefore had certain restrictions. Only one cycle which appeared to be most feasible was employed and no attempt was made to explore the effect of cycles of other sequence or length. Without any doubt, greater capacities and slightly better efficiencies can and will be obtained on equipment designed and constructed for the specific purpose of manufacturing high B.t.u. oil gas by this process.

Free copies of this paper are available from A.G.A. headquarters. A Gas Production Research Committee bulletin on the project will be issued shortly by the American Gas Association with a complete description of tests, detailed operating results and data, analyses of the oil gas, stack gases, oils, tars, and light oils.

Midwest industrial gas group meets

Paul F. Gibson (left), secretary-treasurer, Midwest Industrial Gas Council, and Don R. Groff, chairman, with the program chairman, Bert Roberts

MORE than 100 industrial gas men from the Middle West attended the fall meeting of the Midwest Industrial Gas Council at the LaSalle Hotel in Chicago on October 15. The program was featured by down-to-earth talks on several industrial subjects followed by discussions in which most of the council joined.

Norman Davies, general manager, The North American Manufacturing Co., opened the morning session with a talk on "New Developments in Burner Equipment," illustrated by slides. He was followed by F. W. Hainer, vice-president, Cleaver-Brooks Co., substituting for C. V. Anderson, sales manager of that company, who was unable to be present. Using slides to bring out the high spots of his talk, Mr. Hainer presented an interesting paper on "Packaged Steam Generators."

The afternoon session was opened by Charles C. Eeles, The Ohio Fuel Gas Co., Toledo, who gave an educational talk on "Gas Applied to High-Speed Forging." Harold N. Ipsen, president, Ipsen Industries, Inc., Rockford, Ill., as the closing speaker of the day, presented interesting facts on "New Gas Equipment for the Steel Treating Industries."

It's time to sell

(Continued from page 42)

Rockford, Ill., brought the session to a climatic close with one of his widely-heralded sales demonstrations. Dressed as a prophet in long silken robes and turban, he made a dramatic entrance and proceeded to peer into the future with the aid of a crystal ball. The gist of what he saw was conveyed to his listeners as the theme of his message, "Tell 'Em and Sell 'Em" or the future belongs to the man who sells.

The service concept, demonstrated by the statement "We want to be of help" is the essence of good salesmanship, Mr. Sorby said, adding: "Essential to the salesman are such qualities as character, dependability, thoroughness, ambition, and self-discipline. . . . He must sell with enthusiasm." To the man "who sells and who is a doer of things," these qualities and characteristics "soften up the harshness of competition and make cooperation sparkle like a beacon in a darkened business world."

Handsome door prizes were presented to the lucky-number holders as the meeting ended.

Fuel with a future

(Continued from page 20)

ployee for doing the higher, more difficult, more responsible job, to make worthwhile the additional effort required of him;

3. Develop ways of living closer to the employee and of communicating to him enough of his company's problems for him to have a basis for real understanding;

4. Through training and through management's personal example, encourage the supervisor toward better employee supervision.

As the final event on the program, Charles E. Bennett, president, The Manufacturers Light and Heat Co., Pittsburgh, Pa., introduced a showing of the sound-color film, "Eternal Flame," produced by The Columbia Gas System, Inc.

J French Robinson, president, The East Ohio Gas Co., Cleveland, Ohio, recommended as chairman of the Time and Place Committee that the Natural Gas Department's 1949 spring meeting be held in French Lick, Ind., May 9 and 10. This suggestion was approved.

CONVENTION CALENDAR

1948

NOVEMBER

8-12 •National Hotel Exposition, Grand Central Palace, New York (A. G. A. will exhibit)

9 •A. G. A. Industrial and Commercial Gas Section, Commercial Gas Breakfast, Hotel Roosevelt, New York, N. Y.

11-12 •Mid-Southeastern Gas Association, annual meeting, Sir Walter Hotel, Raleigh, N. C.

15-18 •National Association of Railroad and Utilities Commissioners, Savannah, Ga.

18-19 •National Personnel Conference of the Gas Industry, Palmer House, Chicago

17-20 •The School Food Service Association, second annual meeting, Statler Hotel, Detroit, Mich. (A. G. A. will exhibit)

DECEMBER

November 28-December 3 •American Society of Mechanical Engineers, Hotels Pennsylvania & New Yorker, New York

1949

JANUARY

24-27 •A. G. A. Home Service Workshop, Hotel Statler, Cleveland, Ohio.

24-27 •American Society of Heating & Ventilating Engineers, Stevens Hotel, Chicago, Ill. (A. G. A. will exhibit)

24-28 •International Heating and Ventilating Exposition, International Amphitheatre, Chicago, Ill. (A. G. A. will exhibit)

MARCH

17-18 •Oklahoma Utilities Association annual convention, Hotel Tulsa, Tulsa, Okla.

24-25 •New England Gas Association, annual meeting, Hotel Statler, Boston, Mass.

29-April 1 •A. G. A. Mid-West Regional Gas Sales Conference, Residential Gas Section, Edgewater Beach Hotel, Chicago, Ill.

APRIL

4-6 •A. G. A. Distribution, Motor Vehicle and Corrosion Conference, Netherlands Plaza Hotel, Cincinnati, Ohio

5-7 •A. G. A. Sales Conference on Industrial and Commercial Gas, Andrew Jackson Hotel, Nashville, Tenn.

10-12 •Gas Meters Association of Florida-Georgia Annual Meeting, Ponce de Leon Hotel, St. Augustine, Fla.

11-13 •A. G. A.-E. E. I. Spring Accounting Conference, Hotel Book-Cadillac, Detroit, Mich.

Facing the expansion

(Continued from page 13)

and ever larger facilities have had to be planned and constructed. The result has been that instead of being able to sit back, collect revenues, and pay off old debt, an ever greater stream of new money has had to be obtained to pay for the new facilities.

While I have pointed most of my remarks towards underlining the importance of maintaining a strong capital structure when times are good and capital expenditures large, I must also point out that a good capital structure is vital when times are bad and revenues and profits fall. As we have all learned, depressions are not quiet periods when one can sit back and clean up the ends not taken care of during the busy days of prosperity. Depressions, we have learned, can be so severe that the necessity of meeting daily operating expenses becomes a troublesome burden. Indeed, during the 1930's we found that a capital structure just could not be too strong.

Ours is a vitally dynamic economy, continually undergoing vast changes, severe price fluctuations, commodity substitutions, and great geographic shifts in manufacturing and distributing activities. The unexpected is always happening. The natural gas industry has shown the courage to undertake tremendous tasks and the ingenuity with which to overcome formidable obstacles. I am confident that its financial problems will be met in the same aggressive manner and with eminent good sense.

Personnel service

SERVICES OFFERED

Engineer, Chemical—Graduate June 1948. Prefer position in New York area but will work in other parts of country. Course of study included Fuels, Plant Design. Single. (22). **1586.**

Personnel and **Training**—Military Academy graduate, 1939 (B.S.), with extensive Army service and experience in training and personnel administration; one semester, school of Business (Personnel Administration, Labor Policy, Management), Columbia University. Will go anywhere. Married. (35). **1587.**

Gas Engineer—now employed as consultant and general supervisor for a gas conversions company; previously engineer for Gas Utilities Company; desire new connection in either supervisory, administrative, training, or technical capacity. Chemical Engineer. **1588.**

Depreciation Engineer, Professional registration in petroleum and natural gas (Texas). Graduate of M. I. T. Twenty years' experience in exploration, production, industrial sales, depletion and federal regulation. Currently employed as accounting adviser. Desires connection with large natural gas company. **1589.**

Sales Engineer or **Manager**—over twenty years experience in sales promotion of industrial, commercial, househeating and domestic gas appliances. This has included selling, installing and servicing. Desires to hear from appliance manufacturer, dealer or utility. **1590.**

Engineer, Supervisor:—Graduate engineer with diversified experience in the gas industry. Design of production and handling plants, gas surveys, studies, etc. Operation, maintenance and construction of gas production plants. Distribution operation, maintenance and construction, appraisals. **1591.**

Controller, Assistant Controller, **Treasurer,** Assistant Treasurer—Public Utility specialist in accounting systems and procedures, cost control, budgeting, finance, statistics, rate making and complex regulatory problems. Eleven years experience with large utilities assisting executives in policy-making and other administrative duties. M.B.A., Harvard graduate School of Business Administration. Young, married veteran. **1592.**

Economic Statistician: Columbia graduate, 1943, experienced in economic research. Thorough knowledge of modern statistical technique and experience in organizing and carrying out research projects. Ability to interpret results and express them in concise reports. Married veteran. Available for immediate employment. Prefer vicinity of N. Y. C. (27). **1593.**

Chemical Engineer—Recent graduate of B.P.I. Graduate study in Distillation, Chemical Engineering, Economics and Instrumentation. Undergraduate work in design, chemical engineering processes and fuels. Extensive training and experience in electrical and electronic controls. Desire production or development work in Metropolitan area. Veteran, single. (23). **1594.**

POSITIONS OPEN

Sales Engineer—Permanent position selling couplings, fittings and pipe repair products, primarily to the gas industry. Previous sales experience in this field desirable. Prefer man under 45 free to travel extensively. Salary and bonus. All applications considered in strictest confidence. Write full details concerning education, experience, compensation requirements and other personal data. **0536.**

Eastern Utility—Man experienced in accident prevention work including program development, training, etc. Please state qualifications, age, previous salary background in letter. **0537.**

Production Superintendent for large coal gas plant. Young man, experience with continuous vertical retorts desirable but not essential. Splendid opportunity for energetic person. **0538.**

Medium size straight gas utility—planning changeover to natural gas—has permanent position for young, experienced individual capable of directing **distribution** and **customer service** activities. **0539.**

Service Man for employment with utility company in sub-district propane air system. Experience in servicing appliances and laying mains and services is preferred. Reply giving in detail experience, education and salary expected. **0540.**

Accountant—Experienced in customer and general accounting methods and procedures to specialize in systems work. Accounting machine experience desirable. Headquarters in New York with considerable travelling. Substantial salary and future opportunity. **0541.**

Design Engineer—Graduate engineer with 5 or more years in design, development or application of gas-fired, steam, and hot water unit heaters to head up design group. A knowledge of heat transfer essential. Production experience desirable. Well established AAA1 company located in New York State. Salary open. **0542.**

ADVISORY COUNCIL

ERNEST R. ACKER . . . . . Poughkeepsie, N. Y.
FRANK H. ADAMS . . . . . Toledo, Ohio
EVERETT J. BOOTHBY . . . . . Washington, D. C.
FLOYD C. BROWN . . . . . Chicago, Ill.
WALLACE M. CHAMBERLAIN . . . . . Grand Rapids, Mich.
LYMAN L. DYER . . . . . Dallas, Texas
LESTER J. ECK . . . . . Minneapolis, Minn.
E. F. EMBREE . . . . . New Haven, Conn.
KARL EMMERLING . . . . . Cleveland, Ohio
HENRY FINK . . . . . Detroit, Mich.
R. E. FISHER . . . . . San Francisco, Calif.
RALPH L. FLETCHER . . . . . Providence, R. I.
C. S. GOLDSMITH . . . . . Brooklyn, N. Y.
H. E. HANDLEY . . . . . Jackson, Mich.
L. E. KNOWLTON . . . . . Providence, R. I.
MALCOLM LEACH . . . . . Taunton, Mass.
J. L. LLEWELLYN . . . . . Brooklyn, N. Y.
H. N. MALLON . . . . . Cleveland, Ohio
NORTON MCKEAN . . . . . Albany, N. Y.
R. L. O'BRIEN . . . . . Detroit, Mich.
C. E. PACKMAN . . . . . Chicago, Ill.
C. E. PAIGE . . . . . Brooklyn, N. Y.
J. J. QUINN . . . . . Boston, Mass.
O. H. RITENOUR . . . . . Washington, D. C.
J FRENCH ROBINSON . . . . . Cleveland, Ohio
W. F. ROCKWELL . . . . . Pittsburgh, Pa.
LOUIS RUTHENBURG . . . . . Evansville, Ind.
C. V. SORENSON . . . . . Fort Wayne, Ind.
MARCY L. SPERRY . . . . . Washington, D. C.
T. J. STRICKLER . . . . . Kansas City, Mo.
HARRY A. SUTTON . . . . . Newark, N. J.
CHARLES A. TATTERSALL . . . . . Syracuse, N. Y.
E. M. THARP . . . . . Columbus, Ohio
J. H. WARDEN . . . . . New York, N. Y.
LEITH V. WATKINS . . . . . New York, N. Y.
R. E. WERTZ . . . . . Amarillo, Texas
CHARLES G. YOUNG . . . . . Springfield, Mass.
P. S. YOUNG . . . . . Montclair, N. J.

ASSOCIATED ORGANIZATIONS

Gas Appliance Manufacturers Association
Pres.—Frank J. Nugent, Bryant Heater Co., Cleveland, Ohio.
Man. Dir.—H. Leigh Whitelaw, 60 East 42nd St., New York, N. Y.

Canadian Gas Association
Pres.—Alexander MacKenzie, General Steel Wares, Ltd., Toronto, Ontario.
Exec. Sec.-Tr.—George W. Allen, 7 Astley Ave., Toronto.

Gas Meters Association of Florida-Georgia
Pres.—Clifford J. Noda, St. Augustine Gas Co., St. Augustine, Fla.
Sec.-Tr.—J. W. Owen, Central Florida Gas Corp., Winter Haven, Fla.

Illinois Public Utilities Association
Pres.—C. W. Organ, Central Illinois Light Co., Springfield, Ill.
Sec.-Tr.—T. A. Schlink, Central Illinois Light Co., Springfield, Ill.

Indiana Gas Association
Pres.—Louis B. Schiesz, Indiana Gas & Water Co., Inc., Indianapolis, Ind.
Sec.-Tr.—Clarence W. Goris, Northern Indiana Public Service Co., 500 Broadway, Gary, Ind.

Maryland Utilities Association
Pres.—Adrian Hughes, Baltimore Transit Co., Baltimore, Md.
Sec.—Raymond C. Brehaut, Washington Gas Light Co., Washington, D. C.

Michigan Gas Association
Pres.—T. W. Weigele, Michigan Consolidated Gas Co., Detroit, Mich.
Sec.-Tr.—A. G. Schroeder, Michigan Consolidated Gas Co., Grand Rapids, Mich.

Mid-Southern Gas Association
Pres.—C. B. Zeigler, Public Service Co. of N. C., Inc., Gastonia, N. C.
Sec.-Tr.—Edward W. Ruggles, North Carolina State College, Raleigh, N. C.

Mid-West Gas Association
Pres.—Arnold C. Rathkey, Iowa Public Service Co., Waterloo, Iowa.
Sec.-Tr.—Harold E. Peckham, Northern States Power Co., St. Paul 2, Minn.

Missouri Association of Public Utilities
Pres.—J. W. McAfee, St. Louis, Mo.
Gen. Counsel—Wm. H. Allen, 101 W. High Street, Jefferson City, Mo.

Natural Gas and Petroleum Association of Canada
Pres.—S. A. Morse, Union Gas Co. of Canada, Ltd., Chatham, Ont.
Sec.—Joseph McKee, United Gas and Fuel Co. of Hamilton, Ltd., Hamilton, Ont.

New England Gas Association
Pres.—Edward G. Twohey, Worcester County Electric Co., Webster, Mass.
Exec.-Sec.—Clark Belden, 41 Mt. Vernon St., Boston, Mass.

New Jersey Gas Association
Pres.—Howard H. Melvin, Cumberland Gas Co., Millville, N. J.
Sec.-Tr.—Elmer A. Smith, Public Service Electric and Gas Co., Newark, N. J.

Oklahoma Utilities Association
Pres.—L. A. Farmer, Northern Oklahoma Gas Co., Ponca City, Okla.
Sec.—Kate A. Niblack, 625 Biltmore Hotel, Oklahoma City, Okla.

Pacific Coast Gas Association
Pres.—A. F. Bridge, Southern Counties Gas Co., Los Angeles, Calif.
Man. Dir.—Clifford Johnstone, 447 Sutter St., San Francisco, Calif.

Pennsylvania Gas Association
Pres.—B. V. Pfeiffer, The United Gas Improvement Co., Philadelphia, Pa.
Sec.—William Naile, Lebanon Valley Gas Co., Lebanon, Pa.

Pennsylvania Natural Gas Men's Association
Pres.—Dorr P. Hartson, Equitable Gas Co., Pittsburgh, Pa.
Exec. Sec.—Mark Shields, 2619 Grant Bldg., Pittsburgh, Pa.

Southern Gas Association
Pres.—W. H. Ligon, Nashville Gas & Heating Co., Nashville, Tenn.
Man. Dir.—Robert R. Suttle, 1230 Mercantile Bank Building, Dallas 1, Texas.

Wisconsin Utilities Association
Pres.—W. E. Schubert, Wisconsin Michigan Power Co., Appleton, Wis.
Exec.-Sec.—A. F. Herwig, 135 West Wells St., Milwaukee, Wis.

AMERICAN GAS ASSOCIATION

HEADQUARTERS, 420 LEXINGTON AVE., NEW YORK 17, N. Y.

A. G. A. TESTING LABORATORIES • 1032 East 62nd Street, Cleveland 3, Ohio • 1425 Grande Vista Avenue, Los Angeles, Calif.

◀ OFFICERS ▶

President	ROBERT W. HENDEE	Colorado Springs, Colo.
First Vice-President	HUGH H. CUTHRELL	Brooklyn, N. Y.
Second Vice-President	D. A. HULCY	Dallas, Texas
Treasurer	EDWARD F. BARRETT	Mineola, N. Y.
Assistant Treasurer	V. T. MILES	Mineola, N. Y.
Managing Director	H. CARL WOLF	New York, N. Y.
Secretary	KURWIN R. BOYES	New York, N. Y.

◀ DEPARTMENT CHAIRMEN ▶

Manufactured Gas Department	HUGH H. CUTHRELL	Brooklyn, N. Y.
Natural Gas Department	D. A. HULCY	Dallas, Texas

◀ SECTION VICE-PRESIDENTS AND CHAIRMEN ▶

Accounting Section	L. E. REYNOLDS	Hartford, Conn.
Residential Gas Section	W. M. JACOBS	Los Angeles, Calif.
Industrial & Commercial Gas Section	B. T. FRANCK	Milwaukee, Wisc.
Manufacturers' Section	WILLIAM F. McCONNOR	Pittsburgh, Pa.
Publicity & Advertising Committee	R. G. BARNETT	Portland, Ore.
Technical Section	W. R. FRASER	Detroit, Mich.
Testing Laboratories	ARTHUR F. BRIDGE	Los Angeles, Calif.

◀ DIRECTORS ▶

F. M. BANKS	Los Angeles, Calif.	E. P. NOPPEL	New York, N. Y.
WALTER C. BECKJORD	Cincinnati, Ohio	ROBERT W. OTTO	St. Louis, Mo.
A. M. BEEBEE	Rochester, N. Y.	JOHN C. PARKER	New York, N. Y.
N. B. BERTOLETTE	Hartford, Conn.	HUDSON W. REED	Philadelphia, Pa.
EDWARD G. BOYER	Philadelphia, Pa.	ARTHUR B. RITZENTHALER	Mansfield, Ohio
H. R. COOK, JR.	Baltimore, Md.	JOHN A. ROBERTSHAW	Greensburg, Pa.
E. H. EACKER	Boston, Mass.	W. H. RUDOLPH	Newark, N. J.
HENRY FINK	Detroit, Mich.	LOUIS B. SCHIESZ	Indianapolis, Ind.
J. N. GREENE	Birmingham, Ala.	FRANK C. SMITH	Houston, Texas
OLIVER S. HAGERMAN	Charleston, W. Va.	A. H. STACK	Tampa, Fla.
JOHN L. HALEY	Syracuse, N. Y.	ALLYN C. TAYLOR	Reading, Pa.
D. P. HARTSON	Pittsburgh, Pa.	E. J. TUCKER	Toronto, Ont.
F. A. LYDECKER	Newark, N. J.	JOHN VAN NORDEN	New York, N. Y.
GEORGE F. MITCHELL	Chicago, Ill.	HARRY K. WRENCH	Minneapolis, Minn.
JAMES S. MOULTON	San Francisco, Calif.	C. H. ZACHRY	Dallas, Texas

◀ ASSOCIATION STAFF ▶

Managing Director ..... H. CARL WOLF
Assistant Managing Director ..... JOHN W. WEST, JR.
Assistant Managing Director and Director, Natural Gas Dept. ..... GEORGE H. SMITH
Secretary and Convention Manager ..... KURWIN R. BOYES
Secretary, Manufactured Gas Dept. and Technical Section ..... A. GORDON KING
Controller ..... O. W. BREWER
Acting Director Bureau of Statistics ..... OTTO E. ZWANZIG
Secretary, Accounting Section ..... THOMAS J. SHANLEY
Secretary, Industrial and Commercial Gas Section ..... MAHLON A. COMBS
Secretary, Residential Gas Section ..... F. W. WILLIAMS
Home Service Counsellor ..... JESSIE McQUEEN
Coordinator, Promotion ..... H. VINTON POTTER
Secretary, New Freedom Gas Kitchen Program ..... NORVAL D. JENNINGS
Director, Advertising ..... CHARLES W. PERSON
Director, Publicity ..... GEORGE A. McDONALD
Director, Testing Laboratories (Cleveland, Ohio) ..... EDWIN L. HALL
Supervisor, Pacific Coast Branch Laboratories (Los Angeles, Calif.) ..... W. H. VOGAN
Coordinator, Utilization Research ..... EUGENE D. MILENER
Consultant, Research ..... DR. N. K. CHANEY
Coordinator, Gas Production Research ..... THOMAS LEE ROBEY
Utilization Engineer ..... C. GEORGE SEGELER
Manager, Publications ..... JAMES M. BEALL
Secretary, Information ..... FRANCES GIBBONS

PRINTED IN U. S. A.